



INDIAN AGRICULTURAL
RESEARCH INSTITUTE, NEW DELHI.

REVISTA DE ENTOMOLOGIA

Publicada e dirigida

por

Thomaz Borgmeier, O. I

VOLUME XVIII

Publicado em 3 fascículos

com IV+480 páginas e 336 figuras no texto



ÍNDICE

Assuntos Vários.

- Science and UNESCO: International Scientific Cooperation 248
"Biologia" 249
Homenagem ao Sr. Romualdo Ferreira d'Almeida 249
Sociedade Brasileira de Entomologia 249
A Plea for Brevity and Sanity in Zoological Nomenclature 466
A Proposed Bibliography and Catalogue of World Formicidae 467
VIII Congresso Internacional de Entomologia em Estocolmo 470
Opinions 168 and 191 of the International Commission on Zoological Nomenclature 470
Notícias Diversas 250, 470
Bibliografia 253, 471

Entomologia Aplicada. Biologia.

- Bondar, Insetos de Palmeiras 469
— Notas Entomológicas da Baía. XIX. 273
Squire, On the Economic Importance of the Capsidae in the Guinean Region 219

Entomologia Sistemática.

Coleoptera

- Bondar, Notas Entomológicas da Baía. XIX. 273
Fisher, New Neotropical Cerambycidae, belonging to the genus *Dorcasta* Pascoe 173
Saylor, Studies in the Melolonthine Scarab Beetle Genera of the American Continents. No. V. 161
— New South American Scarab Beetles of the Genus *Astaena* 433
Uhmann, Die Deckenelemente der Hispinae-Gruppen Chalepini und Uroplatini (Chrysom.) 112

Diptera

- Albuquerque, Contribuição ao Conhecimento de *Charadrella malacophaga* Lopes, 1938 (Muscidae) 101
Alexander, Notes on the Tropical American Species of Tipulidae, II, III 65 317
Barretto & Lane, Novos Microdontinae Brasileiros (Syrphidae) 139
Callan, A Note on *Phlebotomus trinidadensis* Newstead (Psychodidae) 215
Dampf, Notas Sobre Flebotômidos Americanos (Psychodidae) 296
Hull, More Flies of the Genus *Baccha* (Syrphidae) 295
Lane, Espécies Brasileiras de *Stilobezzia* (Ceratopogonidae) e *Zygoneura stonei* nov. nom. (Mycetophilidae) 197

- Novas Espécies de Palpomyia do Brasil (Ceratopogonidae) 438 *
- Novos Mycetophilinae do Brasil (Mycetophilidae) 448
- Paramonow, Zur Kenntnis der Amerikanischen Bombyliiden-Gattung
Triploechus Edw. 183
- Kurze Uebersicht der Sericosoma-Arten (Bombyliidae) 361

Hymenoptera

- Arlé, Nouvelles Espèces de Pompilidae du Brésil 416
- Smith, Notes on Pheidole (Decapheidole) and the description of a
new species (Formicidae) 193

Hemiptera

- Monte, Sobre Tingídeos Americanos com Descrições de Espécies No-
vas 429
- Squire, On the Economic Importance of the Capsidae in Guinean
Region 219
- Wygodzinsky, Sobre um Novo Gênero Neotrópico de Vesciinae,
com Considerações Sobre a Subfamília (Reduviidae) 411

Homoptera

- Russell, A Classification of the Whiteflies of the new Tribe Tria-
leurodini (Aleyrodidae) 1

Ephemeroptera

- Traver, Notes on Neotropical Mayflies. Part II. Family Baetidae,
Subfamily Leptophlebiinae 149
- Notes on Neotropical Mayflies. Part III. Family Ephemeridae 370

Mallophaga

- Eichler, Notulae Mallophagologicae. XVIII. Ueber einige Heptapso-
gastridae 167

A Classification of the Whiteflies of the new Tribe Trialeurodini (Homoptera: Aleyrodidae).

By Louise M. Russell, Bureau of Entomology and Plant Quarantine,
Agricultural Research Administration, United States Department of
Agriculture, Washington, D. C.

(With 7 figures)

No tribes were designated in the Aleyrodidae from 1758, when *Phalaena Tinea proletella*, the first valid species of the family, was described by L i n n é (*Systema Naturae*, 10th edition, p. 537), to 1943. In the latter year S a m p s o n (*Ent. Amer.* n. s. 23: 196) named the tribes Neomaskellini, Aleurochitonini, Siphonini, Dialeurodini, and Aleyrodini, in a "Key to Genera of the Aleyrodidae." The Trialeurodini is the sixth tribal division to be proposed.

The accurate definition of tribes in the Aleyrodidae is a perplexing problem, owing to the paucity of morphological characteristics indicative of tribal limits, and possibly in a greater degree, to our incomplete understanding of the significance of the structures that are known to be present. Although several genera of the family fall into apparently natural groups, the majority of them will have to be investigated carefully before their tribal affiliations can be indicated authoritatively.

The most satisfactory classification of tribes of whiteflies doubtless should be based on the study of all stages of the insects. Such a procedure is impossible at the present time, however, and probably will remain so for years, because of the scarcity of positively associated stages. For the present, tribal divisions must be principally recognized from the pupae, the stage that is most often collected, and indeed the only one known for the majority of species. This stage apparently possesses a greater number of diagnostic characters than other stadia, and upon it the generic and specific classification of the family is largely based. The

1) In the present state of our knowledge of the Aleyrodidae, the description of new species and genera from adults alone, an action occasionally taken by a few workers, appears to be unwise. The adults of the majority of species are unknown; there is little possibility of associating undescribed pupae with described adults; and distinguishing generic and specific characters are unknown for most described imagos. Under these circumstances it seems undesirable to introduce names which represent unrecognizable entities. Any gain that is made by such practice is overbalanced by the confusion it causes.

adults, however, have been used almost exclusively in the separation of subfamilies, owing in part to rather readily recognizable differences in wings and feet, and in part to lack of thorough examination and accurate appraisal of the characters of other stages. The adults¹ of the more primitive members of the family appear to be much more useful in both the higher and the lower classification of the family than the adults of the more specialized forms. The worth of the latter in taxonomy cannot be accurately estimated from the relatively small number that are known. In general, the larvae of the more primitive members of the family appear to be of limited taxonomic usefulness below the tribal level, whereas larvae of the more specialized forms appear to be of minor value above the generic level. In many cases, however, critical study of various instars will strengthen any accurate tribal classification that is based on the pupae.

Trialeurodini, new tribe

A submarginal row of disk pores and porettes with which are associated variously conspicuous papillae. Submargin somewhat deflexed, distinct from subdorsum but the two not separated by a furrow. Submedian cephalic setae present, but submedian thoracic and subdorsal abdominal setae absent; submarginal minute setal bases with setae shorter than the width of a submarginal ridge or without distinguishable setae. Middle portions of the thoracoabdominal and transverse molting sutures nearly contiguous. Vasisform orifice ending abruptly, its sides without minute spines, located less than 6 times its length from posterior body margin; lingula contained in orifice. Antennae not reaching to posterior thoracic spiracles. Each thoracic spiracle with a sclerotized area around opening; thoracic tracheal folds without angular markings and usually without spines.

Only the known genera *Aleuoparadoxus* and *Aleuotithius* of Quaintance and Baker and *Trialeurodes* Cockerell appear to be assignable to this tribe. Further study may show, however, that some genera which cannot be placed from their descriptions, and whose representatives are not available to the writer, also belong here.

This study is based on the pupae. The few available larvae and adults were studied, but no tribal characteristics were discovered for them. In the larvae examined, submarginal pores, porettes, and papillae are absent, but submarginal minute setal

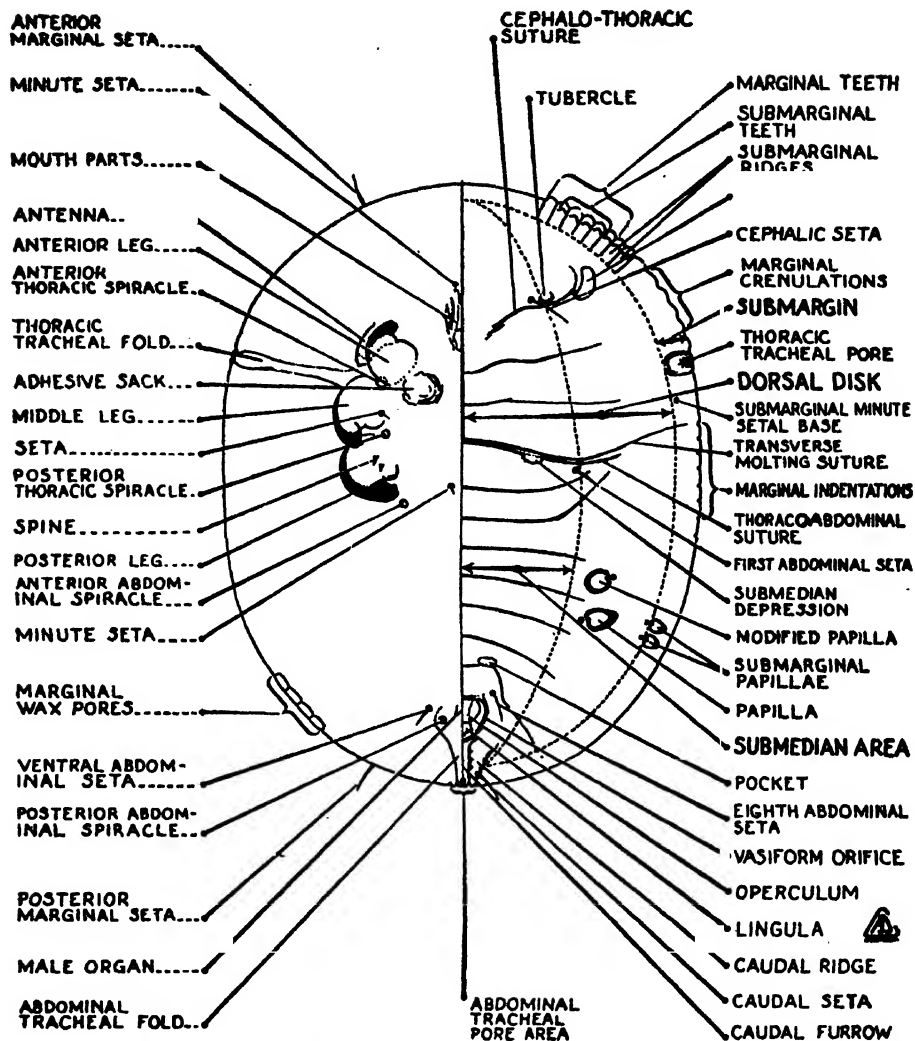


Figure 1. Diagrammatic drawing representing a trialeurodine pupa.

bases are present. The vasiform orifice, operculum, and lingula are similar in shape to those organs of the pupae, and the same dorsal setae are present in the larvae as in the pupae.

The structures used in the taxonomy of the tribe Trialeurodini are shown diagrammatically in figure 1, and are labeled according to the usage of the writer. Some of the terms employed here were defined briefly in another paper (Russell, 1943, *Ent. Soc. Wash. Proc.* 45: [131]-132).

Type specimens of the species treated in this paper are in the collection of the United States National Museum.

Key to Genera of *Trialeurodini*

1. Body margin dentate; median length of abdominal segment 7 at least $\frac{2}{3}$ length of segment 6; at least some dorsal papillae modified into slightly raised, nearly flat, platelike areas; caudal ridges rather strong and conspicuous; a tubercle mesad of cephalic seta; anterior abdominal spiracles at least $\frac{1}{2}$ as large as thoracic ones; the basal area of each leg with a somewhat rugose band bearing minute slender spines; a pair of median setae just anterior to mouthparts and a submedian pair mesad of anterior abdominal spiracles.....

Aleuoparadoxus Quaintance and Baker

- Body margin smooth or slightly crenulate, very rarely dentate; median length of abdominal segment 7 no more than $\frac{1}{3}$ length of segment 6; usually no dorsal papillae modified into nearly flat, platelike areas; caudal ridges relatively weak and inconspicuous, or absent; no tubercle mesad of cephalic seta; anterior abdominal spiracles less than $\frac{1}{2}$ as large as thoracic ones, or not apparent; the basal area of some or all legs without a somewhat rugose band bearing minute slender spines; usually no median setae just anterior to mouthparts and no submedian ones mesad of anterior abdominal spiracles..... 2
- 2. Vasiform orifice cordate or subcordate, definitely narrower posteriorly than anteriorly, located less than 3 times its length from posterior body margin, its bottom relatively short and not approaching anterior margin of operculum; operculum cordate or subcordate, usually relatively narrow posteriorly and usually at least as long as wide; lingula usually wider on distal half than on proximal half, with 3 pairs of lateral lobes and an unpaired terminal one; submargin narrow, no more than $\frac{1}{7}$ and usually less than $\frac{1}{10}$ width of dorsal disk.....

Trialeurodes Cockerell

- Vasiform orifice subhemispherical, nearly as broad posteriorly as anteriorly, located at least 3 times its length from posterior body margin, its bottom relatively long and approaching anterior margin of operculum; operculum transverse, broad posteriorly and distinctly wider than long; lingula of nearly uniform width throughout, lobes weak or absent; submargin broad, at least $\frac{1}{7}$ width of dorsal disk

Aleurotithius Quaintance and Baker

Aleuoparadoxus Quaintance and Baker

Aleuoparadoxus Quaintance and Baker, 1914, U. S. Dept. Agr., Bur. Ent., Tech. Ser. 27: 104; id., 1917, U. S. Natl. Mus. Proc. 51: 379; Baker and Moles, 1921, Rev. Chilena Hist. Nat. 25: 628; Sampson, 1943, Ent. Amer. (n. s.) 23: 206. (Genotype, *Aleyrodes iridescens* Bemis, by original designation.)

Equally abundant on both surfaces of leaves.

Glassy, waxy rods extending outward from submargin, emanating from disk pores or porettes and supported on papillae. Whitish or colorless wax on dorsum, also covering ventral surface and thin in the center of the body, but gradually thickening toward the margin and forming a low palisade.

Subcircular to somewhat elliptical; ventral surface nearly flat. Brown or black and heavily sclerotized, or colorless and membranous.

Body margin dentate. Anterior and posterior marginal setae

arising from tips of teeth. Submarginal ridges, pores, porettes, and papillae present. Submarginal setal bases in 7 pairs on cephalothorax and in 8 pairs on abdomen, their setae barely or not distinguishable.

Dorsal disk pores, porettes, and papillae present; some or all papillae modified into slightly elevated, nearly flat, platelike areas. Subdorsum somewhat sculptured. A pair of submedian setae on cephalic segment, on first and eighth abdominal segments, and a median caudal pair. A tubercle mesad of cephalic seta. Cephalo-thoracic suture obscure in median area, promesothoracic one with a median rearward bend, thoracoabdominal one parallel to middle portion of transverse molting suture, other intersegmental sutures nearly straight in median area; ends of cephalo-thoracic, promesothoracic, abdominal sutures 1 and 2 bent cephalad, ends of mesometathoracic and abdominal suture 3 nearly straight, ends of abdominal sutures 4-7 bent caudad, 7 strongly bent; most sutures ending in inner subdorsum, but the posterior 2 often defined to central or outer subdorsum. Median length of cephalic segment about $1\frac{1}{2}$ times that of thorax; length of prothorax about $1\frac{1}{2}$ times that of mesothorax; meso and metathorax subequal; abdominal segments 1-7 subequal or segment 7 as much as $\frac{1}{3}$ shorter than segment 6, each much shorter than segment 8. Pairs of submedian depressions arranged as follows: One or 2 mesocephalad and 2 mesad of setae on cephalic segment, 1 in or adjoining posteriorly each cephalothoracic suture and 1 well removed from suture on each segment of thorax, 1 in or posterior to thoracoabdominal and each of abdominal sutures. Vasiform orifice somewhat cordate, located $\frac{3}{4}$ - $1\frac{1}{2}$ times its length from posterior suture and $\frac{3}{4}$ - $2\frac{3}{4}$ times its length from posterior body margin, its rim prominent, its sides vertically ridged, its bottom extending forward approximately $\frac{1}{2}$ the length of the orifice. Operculum similar in shape to, and almost or completely filling orifice; ventrally, irregular near base, surface and posterior margin with minute slender spines, a pair of small setae near center. Lingula elongate, usually with 3 pairs of lateral lobes and an unpaired terminal one; with minute slender spines; a pair of small setae at base of posterior lateral lobes, and an elongate pair arising ventrally at base of terminal lobe. Caudal furrow well-defined, extending from orifice to submargin. Caudal ridges conspicuous.

Marginal wax tubes usually apparent. Tracheal folds well-defined. Thoracic spiracles about twice the size of anterior abdominal ones, slightly smaller than posterior abdominal ones;

the last located slightly posterior to widest part of orifice. Beak apparently 2-segmented, with 3 pairs of minute setae at apex, 1 pair just before apex, and 1 pair at base of distal segment. Antenna 2-segmented, reaching just beyond anterior spiracle; basal segment approximately $1/3$ length of distal one; apex of the latter narrowed, bearing numerous minute spines, and apparently 2 very small sensory setae. Leg stout, curved, with slight or no indication of segmentation; a somewhat rugose band with several to many minute spines, extending across basal part; band of each leg with 2-6 minute setae, and band of each middle and posterior leg also with 1 or 2 relatively elongate setae; apparently 2 or 3 minute setae on anterior leg and 3 on middle and posterior leg, just before disk; outer margin of leg in a furrow in derm laterad of it. One pair of adhesive sacs. A pair of small median setae just anterior to mouthparts, and a small submedian pair mesad of anterior abdominal spiracles; ventral abdominal setae located nearly their length from posterior spiracles. Male organ a bifid sac.

The genus *Aleuoparadoxus* is rather closely related to *Trialeurodes*. Ten species are treated here and they fall into three fairly distinct groups; *iridescent*, *arctostaphylli*, *gardeniae*, and *ilicicola* compose one, and *rhodae* represents an intermediate group between the former and that made up of *chomeliae*, *sapotae*, *trinidadensis*, *truncatus*, and *punctatus*.

The genus is known surely only from the Western Hemisphere, though it may occur elsewhere. The species described from Egypt as *Trialeurodes porosus* by Priesner and Hosny (1938, *Soc. Roy. Ent. d'Egypt Bul.* 21: 45-46, illus.) may belong in this genus, but its position cannot be determined from its description and no specimens are available for study. The assignment of the European species *Aleyrodes lauri* Signoret to *Aleuoparadoxus* by Silvestri (1934, *Compendio di Entomologia Applicata* (13), pp. 398-399, illus.), is erroneous. The species considered by Silvestri, which he probably correctly identified as *lauri*, belongs in the genus *Trialeurodes*.²

²) Silvestri states (op. cit., p. 399), "Ricordo, in appendice ai *Trialeurodes*, l'*Aleuoparadoxus lauri* (Signoret)". The present writer has not been able to discover to what "appendice" Silvestri referred, and believes that both *Trialeurodes lauri* (Signoret) and *Aleuoparadoxus lauri* (Signoret) are new combinations dating from Silvestri, 1934. *Aleurodes lauri* Signoret (1881, *Soc. Ent. de France Bul.*, p. clviii) was described from *Laurus nobilis* from Athens, Greece. Type specimens of *lauri* are not available to the present writer, and Signoret's description is inadequate for the positive identification of the species. However, many specimens of a *Trialeurodes* from *Laurus* from Italy and Greece have been examined; they agree with the meager description by Signoret and with the description by Silvestri, and it is believed they represent the species

Aleuoparadoxus is an unusual aleyrodid genus in that its known members occur just as abundantly on the upper as on the lower surface of leaves. Both surfaces of available host leaves exhibit similar physical characteristics, and this similarity of structure doubtless is partially responsible for the uncommon habit of the insects. None of the insects examined show structural modifications which appear to be attributable to a change in position on the host, as do some species of *Trialeurodes* which normally inhabit the lower surface of leaves but which sometimes develop on the upper surface. The species that are represented by numerous specimens exhibit considerable variation in morphological characteristics. The individual species are quite distinct, however.

The few available third-stage larvae differ from those of other genera of the *Trialeurodini* in having the dorsal papillae modified into slightly raised, nearly flat, platelike areas, in having the seventh abdominal segment nearly as long as the sixth, and in having the submargin strongly ridged. No adults of the genus are available.

Key to Species of *Aleuoparadoxus*

1. Submarginal papillae located at inner edge of submargin, submarginal ridges not transversely striated between or mesad of the papillae; the majority of submarginal papillae usually nearly contiguous but as much as the width of a papilla apart in *ilicicola*; caudal ridges rather strongly elevated opposite caudal furrow and nearly as wide as long; anterior leg without minute setae anteriorly, mesad of rugose band (*Iridescens* Group) 2
- Submarginal papillae located slightly (in *rhodae*) or distinctly distad of inner edge of submargin, submarginal ridges transversely striated between or mesad of the papillae; the majority of submarginal papillae much more than the width of a papilla apart except in *punctatus*; caudal ridges less strongly elevated opposite caudal furrow or much longer than wide except in *rhodae*; anterior leg with 1-3 minute setae anteriorly, mesad of rugose band 5
2. Row of submarginal papillae not recessed behind thoracic tracheal pore areas, papillae 28-56 microns long and 12-18 wide; abdominal tracheal pore area without a pore-shaped design; submarginal teeth inconspicuous or not apparent; modified papillae of abdominal segments 3-7 measuring 35-50 microns in diameter; submedian depressions rather poorly defined

lauri. Apparently only two other aleyrodids are known on *Laurus nobilis* in Europe. One, *Trialeurodes klemmi* Takahashi (1940, *Arb. über Morph. u. Taxonom. Ent.* 7: 148-149, illus.), described from *Laurus nobilis* from Rab, Yugoslavia, is here synonymized with *Trialeurodes lauri* (Signoret) on the basis of its description. (New synonymy.) The other, *Roucasia ovata* Goux (1940, *Soc. Ent. de France Bul.* 45: 45-47, illus.), described from France from *Hedera helix* and recorded from *Laurus nobilis*, appears from its description to be entirely distinct from the species here accepted as *Trialeurodes lauri* (Signoret).

- on abdomen; ends of transverse molting suture approximately opposite midpoint of mesometathoracic suture 3
- Row of submarginal papillae recessed behind thoracic tracheal pore areas, papillae 6-20 microns long and 6-14 wide; abdominal tracheal pore area with a pore-shaped design; submarginal teeth rather conspicuous; modified papillae of abdominal segments 3-7 measuring approximately 20 microns in diameter; submedian depressions well-defined on abdomen; ends of transverse molting suture approximately opposite its midpoint 4
3. Thoracic tracheal pore-shaped designs present, each with a porous appearing area; submarginal papillae nearly contiguous; usually no submarginal minute setal bases as near to distal as to inner ends of submarginal papillae; modified papillae usually in 5 pairs on cephalic segment and in 3 pairs on prothorax; anterior leg without spines anteriorly, mesad of rugose band (Fig. 2, A-E).... *iridescens* (Bemis)
- Thoracic tracheal pore-shaped designs absent or barely suggested, without a porous appearing area, each pore area usually indicated by the wideness of marginal teeth and submarginal ridges; submarginal papillae not contiguous, the majority about 1/5 the width of a papilla apart; some submarginal minute setal bases as near or nearer to distal as to inner ends of submarginal papillae; modified papillae usually in 4 pairs on cephalic segment and in 2 pairs on prothorax; anterior leg with 1-3 poorly to well-developed, blunt spines anteriorly, mesad of rugose band (Fig. 2, F-H; fig. 3, G-I)..... *arctostaphyli*, new species
4. Subdorsal modified papillae of cephalic segment varying slightly in size, usually each about 24-30 microns in diameter; inner and central subdorsal modified papillae of meso and metathorax each about 20-24 microns in diameter; subdorsal modified papillae of abdominal segment 6 slightly or no larger than subdorsal ones of segment 7; submarginal papillae nearly contiguous (Fig. 3, A-D)..... *gardeniae*, new species
- Subdorsal modified papillae of cephalic segment varying considerably in size, usually the inner pair about 16, and the outer ones 26-36 microns in diameter; inner subdorsal modified papillae of meso and metathorax about 20, and central subdorsal ones of those segments about 32 microns in diameter; subdorsal modified papillae of abdominal segment 6 about twice the size of subdorsal ones of segment 7; submarginal papillae usually 1/2 to the full width of a papillae apart (Fig. 3, E-F) *ilicicola*, new species
5. Body elongate ovoid, anterior half distinctly wider than posterior half; derm nearly colorless; submedian modified papillae of abdominal segments 3-6 longitudinally elongate, and approximately 4 times as long as the diameter of subcircular subdorsal ones of those segments; 4 pairs of subdorsal and 2 pairs of submedian modified papillae on cephalic segment; caudal ridges greatly elevated and almost meeting above posterior portion of caudal furrow; submarginal ridges not transversely striated mesad of papillae (Rhodae Group) (Fig. 4, A-C) *rhodae*, new species
- Body broadly ovoid or subcircular, anterior half no wider than posterior half; derm brown or black except in *chomeliae*; submedian modified papillae of abdominal segments 3-6 subcircular and their diameter no more than twice the diameter of subdorsal ones of those segments, or absent; more than 4 pairs of subdorsal or less than 2 pairs of submedian modified papillae on cephalic segment; caudal ridges not greatly elevated, well separated above posterior portion of caudal furrow; submarginal ridges transversely striated mesad of papillae (Sapotae Group) 6

6. No subdorsal ridge on thorax and abdomen; median tooth of each thoracic tracheal pore relatively short, not extending beyond inner margin of outer teeth of pore; median modified papillae absent; cephalic, and first and eighth abdominal setae not tapered. 7
- A subdorsal ridge on thorax and abdomen; median tooth of each thoracic tracheal pore longer than above, extending outward nearly or actually as far as outer teeth of pore; median modified papillae present at least on abdominal segment 2; cephalic, and first and eighth abdominal setae at least somewhat tapered 9
7. Derm colorless, membranous; eye spots absent; submarginal papillae very inconspicuous, not elevated, very lightly sclerotized, subcircular areas of nearly uniform size, none recessed at the thoracic tracheal pores; a porous appearing area in the abdominal tracheal pore (Fig. 4, D-J) *chomeliae*, new species
- Derm brown or black, heavily sclerotized; eye spots conspicuous; submarginal papillae more conspicuous than in *chomeliae*, at least slightly elevated, moderately sclerotized, somewhat conical in outline, 2 each side of each thoracic tracheal pore much larger than others and the inner 2 of these 4 strongly recessed; no porous appearing area in the abdominal tracheal pore 8
8. Body approximately 1 mm. long and wide, conspicuously narrower on anterior half than on posterior half; submarginal ridges nearly uniform in width mesad of papillae, transversely and longitudinally striated and thus divided into square or rectangular areas, except close to body margin; modified papillae of abdominal segments 3-6 measuring less than 15 microns in diameter; median tooth of each thoracic tracheal pore extending to inner edges of outer teeth, 2 inner teeth in abdominal tracheal pore; no submedian modified papillae on meso or metathorax; slender spines 6-14 microns long in rugose bands of anterior and middle legs (Fig. 5, A-F) *sapotae*, new species
- Body approximately 1.25 mm. long and 1 wide, only slightly narrower on anterior half than on posterior half; submarginal ridges varying in width mesad of papillae, a narrow one alternating with a wider one, transversely striated only between and mesad of papillae, usually not longitudinally striated and not divided into square or rectangular areas; modified papillae of abdominal segments 3-6 measuring 32-45 microns in diameter; median tooth of each thoracic tracheal pore very short, not extending to inner edges of outer teeth of pore, 1 inner tooth in abdominal tracheal pore; 1 pair of submedian modified papillae on meso and metathorax; no elongate spines in rugose bands of legs (Fig. 5, G-J) *trinidadensis*, new species
9. Marginal teeth truncate; minute spines present on inner portion of submarginal ridges; a pair of submedian, but no median modified papillae on each of abdominal segments 3-6; vasiform orifice slightly wider than long, its sides somewhat convex, its bottom lightly ridged longitudinally; caudal ridges strongly sculptured transversely; eye spots conspicuous; no spines in thoracic tracheal folds (Fig. 6, A-G).....
truncatus, new species
- Marginal teeth curved; minute spines absent from submarginal ridges; no submedian, but 2-8 median papillae on each of abdominal segments 3-6; vasiform orifice distinctly longer than wide, its sides vertical, its bottom covered with somewhat quadrate, and narrow dentate areas; caudal ridges weakly sculptured transversely; eye spots absent; spines at inner ends of thoracic tracheal folds (Fig. 6, H-L).....
punctatus Quaintance and Baker

Aleuroparadoxus iridescens (Bemis)

(Fig. 2, A-E)

Aleyrodes iridescens Bemis, 1904, U. S. Natl. Mus. Proc. 27: 487-489, illus., in part.
Aleuroparadoxus iridescens (Bemis), Quaintance and Baker, 1914, U. S. Dept. Agr.,
 Bur. Ent., Tech. Ser. 27: 104, in part; id., 1917, U. S. Natl. Mus. Proc. 51: 379-
 380, illus., in part.

The present concept of *A. iridescens* is based upon a lectotype herein designated, upon syntypes, and upon other specimens specifically identical with the lectotype. It is necessary to establish the identity of *iridescens* because two species were partially described by Bemis, and by Quaintance and Baker, under the one name; a type specimen was not selected by these or other workers; and the collection data published with the original description do not agree completely with the data accompanying the mounted specimens which apparently were principally used by Bemis, and also by Quaintance and Baker, in their definitions of the species.

It may be desirable to discuss the problems involved in selecting the types of this species. Following the description of *iridescens*, Bemis stated (op. cit., p. 489):

"*Cotypes*. — No. 7084, U. S. N. M.

"Collected on *Rhamnus californica*, *Umbellularia californica*, and *Heteromeles arbutifolia*, from the Santa Clara Valley and the slopes of the Santa Cruz Mountains; also on *Rhamnus crocea*, *Arctostaphylos manzanita* from King's Mountain, and on *Arctostaphylos* from the Yosemite Valley."

The mounted specimens of *iridescens* apparently used primarily by Bemis, and by Quaintance and Baker, in their definitions of the species, are on two slides which are labeled "*Heteromeles arbutifolia*, L. S. Jr. U. Campus, U. S. N. M. No. 7084, cotypes." There is a question, however, whether they can be strictly regarded as type material unless it is assumed that Bemis substituted the general location "Santa Clara Valley" for "L. S. Jr. U. Campus" in the published data for *iridescens*. Such a substitution seems entirely possible for a similar situation exists between the labels on the slides and the published data of at least two other species described by Bemis (*kelloggi*, op. cit., p. 500, and *nigrans*, op. cit., p. 523); however, Leland Stanford Junior University Campus is listed as a locality for several species, and in one instance (*errans*, op. cit., p. 502) both it and "various places in the Santa Clara Valley" are given. After a comparison of information on slides with that published, for various species, almost any irregularity seems possible because of

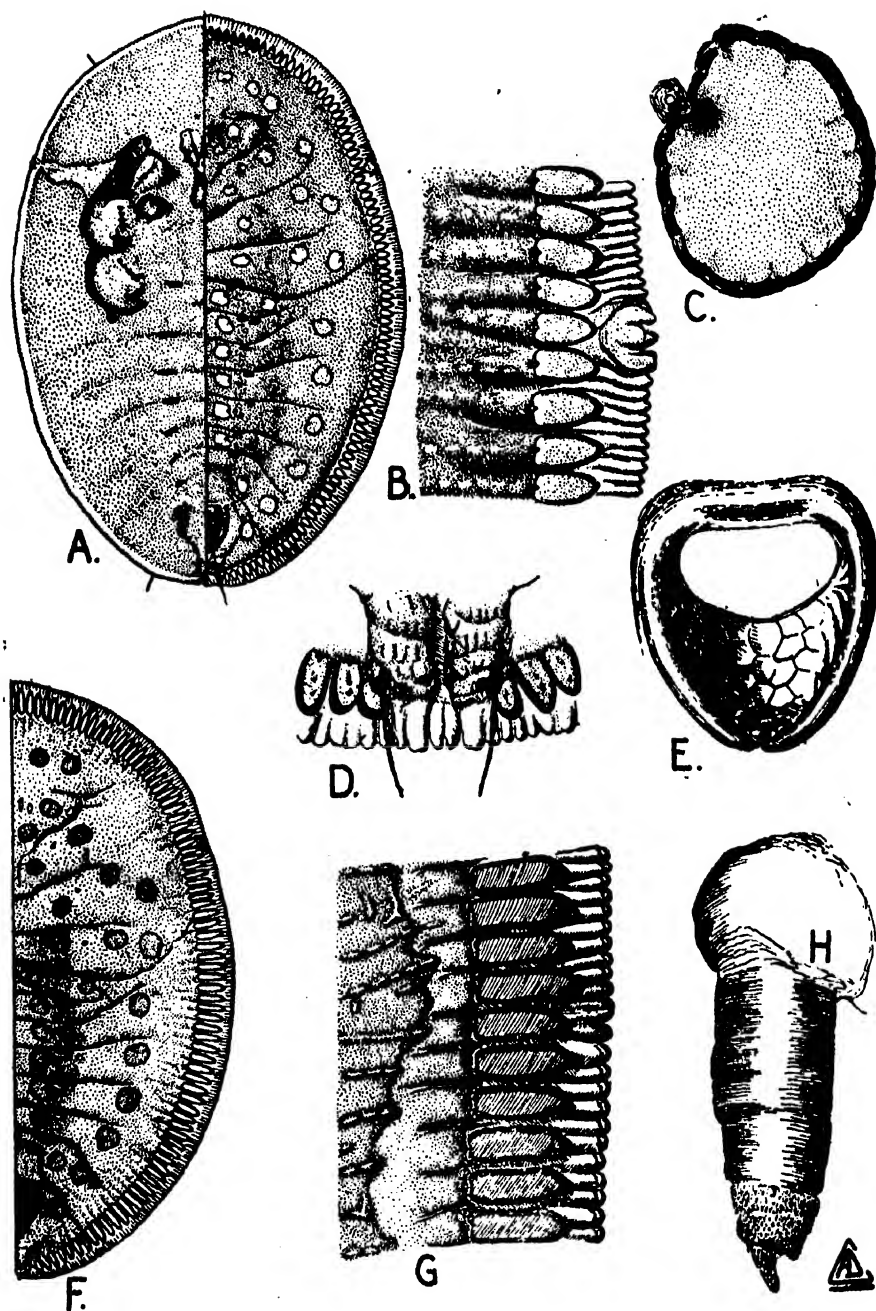


Figure 2. *Aleuoparadoxus tridescens*: A, outline; B, section of margin, submargin, and subdorsum; C, modified papilla; D, part of posterior segment, dorsal view; E, vasisform orifice, without operculum or lingula. *A. arctostaphylli*: F, half of dorsum; G, section of margin, submargin, and subdorsum; H, antenna.

the inconsistencies between the two, and omissions from, or errors in, one or the other.

If the mounted specimens studied by Bemis are rejected as being unavailable for the lectotype, this specimen must be selected from cotypes which had not been mounted before the present study. This material is in one envelope bearing all the data published by Bemis except *Umbellularia californica*, the Santa Cruz Mountains, and *Arctostaphylos* from the Yosemite Valley. Only three kinds of leaves are present under No. 7084; one is *Rhamnus crocea*; the other leaves are fragmentary but one appears to be *Rhamnus californica*, and the other may be *Heteromeles arbutifolia*. No leaves of *Arctostaphylos manzanita* or *Arctostaphylos* sp. are present under No. 7084, though a leaf of the latter from the Yosemite Valley is available under a different number. If Bemis or Quaintance and Baker had mounted specimens from these lots, the preparations were not present in the collection of the National Museum or of Stanford University³ when the present writer began the study of *Aleuroparadoxus*. Specimens have now been mounted from each of the available hosts of No. 7084, and they are specifically identical to those previously mounted from *Heteromeles*. The specimen from *Arctostaphylos* from the Yosemite Valley represents a distinct species, however.

Since all available specimens under No. 7084 are specifically identical, and since there is a possibility that "Santa Clara Valley" was listed in place of "L. S. Jr. U. Campus", it seems advisable to designate as lectotype one of the mounted specimens studied by Bemis.

Submarginal waxy rods nearly as long as width of body. Rosettes of short white ribbons of wax around modified papillae. Palisade of wax vertical.

Oval, widest across abdominal segment 1, 1-1.35 mm. long and 0.70-0.90 wide (males in lower brackets of figures). Derm dark brown to black, heavily sclerotized, thick; ventral surface sometimes lighter in color, less sclerotized, and thinner than dorsum.

Marginal teeth rounded, moderately strong, slightly wider than long, slightly variable in width, 14-19 in 100 microns. Sub-

³) All representatives of *Aleuroparadoxus* in the collection of Stanford University were kindly loaned the writer by G. F. Ferris. One of the mounts, labeled "Rhamnus calif. Adelanti Villa, 11-12-01, F. E. D." may have been studied by Bemis; there is no assurance that it was included in the type series, however.

marginal teeth weak or not apparent. Each thoracic tracheal pore with a rather poorly defined porous appearing area, with outer teeth usually larger and more blunt than other marginal teeth, with median tooth relatively sharp and extending as far outward as outer teeth; pore extending to submarginal papillae, as wide as deep; abdominal tracheal pore area indicated by the depth of incisions between marginal teeth and the wideness of 3-5 (usually 4) teeth and submarginal ridges. Anterior marginal setae 25 microns long, posterior marginal 40.

Submargin about $1/2$ as wide at posterior end of body as elsewhere, approximately $1/12$ width of dorsal disk at greatest width of body. Submarginal ridges well-defined, as wide as marginal teeth except near papillae where some usually widen and others narrow; furrows between papillae extending into subdorsum. Submarginal papillae totaling 140-228, in a single row, directed laterally; located at inner edge of subdorsum, the majority approximately the length of a papilla from body margin, nearly or actually contiguous, not recessed behind thoracic tracheal pores; a few near posterior end usually somewhat conical and smaller than others but the majority elongate, 28-44 microns long and 12-16 wide, their inner ends rounded, truncate, or minutely indented, their distal ends rather bluntly pointed, their sides starting to converge near distal end or occasionally at midlength, under side of distal ends more heavily sclerotized than upper portion. Submarginal porettes adjacent to, or in minute indentations in, inner ends of papillae; disk pores nearly contiguous to, and much larger than porettes. Submarginal minute setal bases between or just mesad of inner ends of papillae.

Modified papillae with walls vertical and crenulate, usually flat or slightly curved over the top but occasionally distinctly higher on one side than on the other, irregularly subcircular to subelliptical; 20-52 microns (majority 35-45) in greatest diameter, the subdorsal ones of each segment usually 4-8 microns longer than submedian ones of same segment; porettes in minute indentations in, and disk pores nearly contiguous to papillae, their position in relation to papillae somewhat variable but usually as shown in figure 2, A. Pairs of papillae located as follows: Cephalic segment, 2 submedian posteriorly, and 3 (rarely 4) central subdorsal (1 near median line); prothorax, 1 inner and 1 outer submedian, and 1 central subdorsal; meso and metathorax, each 1 submedian, and 1 inner and 1 central subdorsal; first abdominal segment, 1 inner and 1 outer submedian; second, 1 submedian;

third through sixth, each 1 submedian, and 1 central subdorsal; seventh, 1 outer submedian, and 1 central subdorsal; eighth, 1 central subdorsal. A low rachis on abdomen. Subdorsum sculptured by depressed, punctate lines extending mesad from submargin. Transverse molting suture curved caudad slightly from its midpoint, recurved and terminating at submargin nearly opposite midpoint of mesometathoracic suture. Abdominal segment 7 about $3/4$ length of segment 6. Submedian depressions faint to moderately distinct. Pockets shallow, barely apparent. Cephalic setae 44 microns long, first abdominal 40-52 microns; eighth abdominal 32-40 microns, located midway between rim along anterior edge of orifice and posterior suture; caudal setae about 50 microns, located at outer posterior angle of caudal ridges cephalad or mesocephalad of posterior submarginal papillae; setae tapered, their apices acute, their bases slightly tuberculate. Vasiform orifice elongate cordate, 76-92 microns long and 60-76 wide (inside rim), located approximately its length from posterior suture and from posterior body margin; its sides nearly vertical, broadly ridged, the median portion of its bottom with rounded tooth-shaped areas except at anterior end; rim rounded over top, 12-18 microns long at anterior end of orifice and 8-12 microns thick elsewhere, with or without a small notch at posterior end. Operculum cordate, 60-84 microns long and 52-64 wide. Lingula reaching to end of operculum, its lobes well-defined. Narrow furrows beside orifice merging with caudal furrow at end of orifice; caudal furrow deeper than wide, conspicuous. Narrow low ridges starting laterad of anterior ends of furrows beside orifice, gradually enlarging posteriorly, elevated and transversely sculptured opposite caudal furrow.

Antenna moderately tapered, somewhat fingerlike at apex. Each middle and posterior leg with a seta about 10 microns long in rugose band. Ventral abdominal setae at least 20 microns long, total length not determinable in available specimens.

Type. — U. S. N. M. 7084. Stanford University Campus, Calif., from *Photinia*.

Hosts. — *Photinia* (*Heteromeles*) *arbutifolia* (Ait.) Lindl., *Photinia* (*Heteromeles*) sp., *Rhamnus californica* Esch., *R. crocea* Nutt., *R. ilicicola* Kellogg, *Rhamnus* sp., *Salvia* sp.

Distribution. — California, Baja California.

Redescribed from a few unmounted specimens and 43 mounted ones as follows: *P. arbutifolia*, Stanford University Campus, "4-1-10" (including lectotype hereby designated, and syntypes);

P. arbutifolia?, Santa Clara Valley, (syntypes); *Photinia* sp., San Clemente Island, E. A. Mearns, August 25, 1894, U. S. N. H.⁴; *R. californica*, Santa Clara Valley (syntypes); "*Rhamnus calif. Adelante Villa*" [Stanford University Campus], "11-12-01"; *R. californica*, Stanford University Campus, G. F. Ferris, April 26, 1945; *R. californica*, no other data; *R. crocea*, King's Mountain, Santa Clara Valley (syntypes); *R. crocea*, southern California, R. S. Woglum, December 1907; *R. crocea*, Ontario, M. Moles, February 6, 1919, and D. D. Penny, May 9, 1930; *R. crocea?*, Mt. Wilson, no other data; *R. ilicifolia*, California, no other data; *Rhamnus* sp., no other data; *Salvia* sp., Monserrate Island (Gulf of California), J. C. Chamberlain, 1921.

The pupae of *iridescens* exhibit rather surprising variation in the size and proportions of the submarginal papillae, but it is just as marked in specimens from one lot as in specimens from different hosts and localities. Although they vary in other characteristics, the insects examined show no greater variation than might be expected within a species.

The five available third-stage larvae of *iridescens* have two pairs of subdorsal modified papillae on the cephalic segment, one pair on each thoracic segment, one pair on each of the third to the eighth abdominal segments, and a submedian pair on the cephalic segment, on the pro and mesothorax, and on the first abdominal segment. There is noticeable variation in the size of the modified papillae, though the subdorsal ones are consistently larger than the submedian ones.

Aleuoparadoxus arctostaphyli, new species
(Fig. 2, F-H; fig. 3, G-I)

Aleyrodes Iridescens Bemis, 1904, U. S. Natl. Mus. Proc. 27: 487-489, in part.
Aleuoparadoxus Iridescens (Bemis), Quaintance and Baker, 1914, U. S. Dept. Agr., Bur. Ent., Tech. Ser. 27: 104, illus., in part; id., 1917, U. S. Natl. Mus. Proc. 51: 379-380, in part.

This form was included under *iridescens* by Bemis, and by Quaintance and Baker; indeed the two species resemble each other, and are closely allied. This form is as variable as *iridescens*.

Differing from *iridescens* as described below.

Submarginal teeth faintly defined. Thoracic tracheal pore

⁴) The abbreviations U. S. N. H. and N. Y. B. G. refer to the United States National Herbarium and the New York Botanical Garden, respectively. Their usage indicates that certain insects were removed from plants in those herbaria, through the courtesy of the directors of the institutions. The names of the plant collectors are given.

absent or indicated faintly, without a porous appearing area, each pore area indicated by the wideness of 2-4 marginal teeth and submarginal ridges; abdominal tracheal pore area less distinct than in *iridescens*. Submarginal papillae 32-56 microns (usually 40-50) long and 16-18 wide, not contiguous, the majority about $1/5$ the width of a papilla apart. Submarginal minute setal bases varying in position, some as near or nearer to distal as to inner ends of papillae.

Usually only 2 (occasionally 3) pairs of central subdorsal modified papillae on cephalic segment, and 0 (occasionally 1) central subdorsal pair on prothorax; papillae 20-64 microns (majority 36-54) in greatest diameter. Cephalic, first and eighth abdominal setae, each 24-32 microns long; caudal setae 10-30 microns. Vasiform orifice rather broad posteriorly, 68-88 microns long and 60-80 wide. Operculum 64-80 microns long and 56-72 wide. Caudal ridges usually larger and more strongly elevated opposite caudal furrow.

Antenna abruptly tapered, short fingerlike at apex. Each anterior leg with 1-3 poorly to well-developed, blunt spines anteriorly, mesad of rugose band; each middle and posterior leg with a seta apparently about 20 microns long in rugose band. Ventral abdominal setae 35-40 microns long.

Type. — U. S. N. M. 58224. Butte County, Calif., from *Arctostaphylos* sp.

Hosts. — *Arbutus menziesi* Persh, *Arctostaphylos manzanita* Parry, *A. numullaria* Gray, *A. tomentosa* Pursh, *A. virgata* Eastwood, *A. viscida* Parry?, *Arctostaphylos* sp., and an unidentified host.

Distribution. — California.

Described from a few unmounted paratypes, 29 mounted ones, and from mounted holotype, as follows: *A. menziesi*, Santa Ana, E. O. Essig, January 2, 1925; *A. menziesi*, Trabuco Canyon, Santa Ana Mountains, Orange County, C. B. Wolf, November 8, 1933, N. Y. B. G.; *A. manzanita*, Mount Tamalpais, Marin County, Heller and Brown, March 7, 1902, N. Y. B. G.; *A. manzanita*, Alta, Placer County, A. K. Fisher, January 7, 1906, U. S. N. H.; *A. manzanita*, Ukiah, Mendocino County, Alice Eastwood, June 13, 1913, U. S. N. H.; *A. numullaria*, Boulder Creek, Vernon Bailey, October 13, 1891, U. S. N. H.; *A. numullaria*, Ben Lomand, Santa Cruz County, A. D. E. Elmer, July 1903, U. S. N. H.; *A. numullaria*, Mount Tamalpais, Marin County, F. C. Coville, March 22, 1925, U. S. N. H.; *A. tomentosa*,

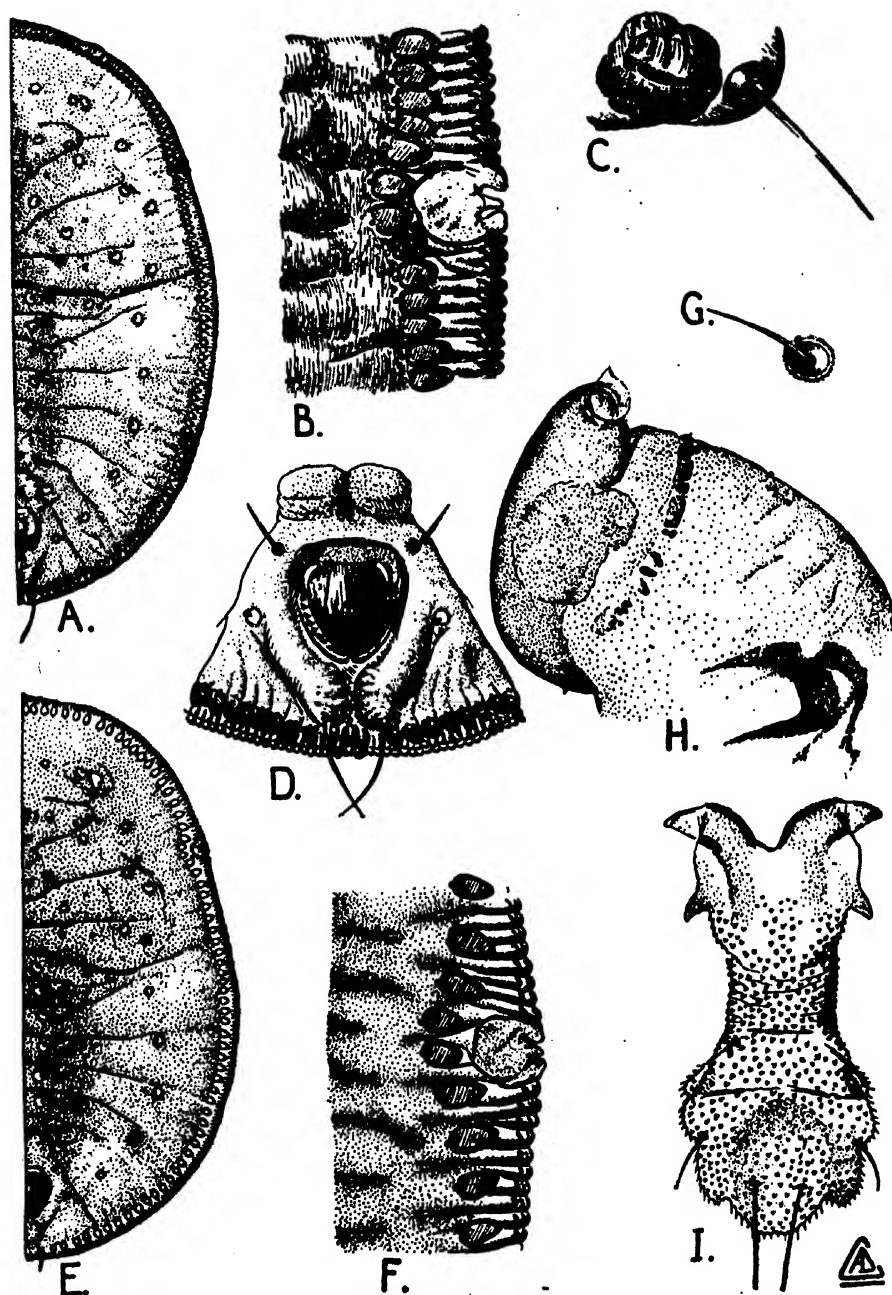


Figure 3. *Aleuoparadoxus gardeniae*: A, half of dorsum; B, section of margin, submargin, and subdorsum; C, cephalic seta, and tubercle; D, posterior segment, dorsal view. *A. illicicola*: E, half of dorsum; F, section of margin, submargin, and subdorsum. *A. arctostaphylli*: G, cephalic seta; H, anterior leg; I, lingula, showing elongate setae broken.

Lake County, T. S. Brandege, 1888, U. S. N. H.; *A. virgata*, Mount Tamalpais, Marin County, Alice Eastwood, December 28, 1902, U. S. N. H.; *A. viscida?*, California, Thomas Bridges, U. S. N. H.; *Arctostaphylos* sp., Yosemite Valley, June-July, 1902 (labeled cotype of *iridescens*); *Arctostaphylos* sp., Zaca Lake, F. A. Walpole, April 5, 1904, U. S. N. H.; *Arctostaphylos* sp., San Gabriel Mountains, P. H. Timberlake, July 4, 1911; *Arctostaphylos* sp., south of Forest Ranch, Butte County, A. A. Heller, February 22, 1928, U. S. N. H. (holotype); unidentified host, Chico, W. M. Scott, January 1906.

Three third-stage larvae of *arctostaphyli* differ from larvae of *iridescens* in lacking prothoracic submedian modified papillae; in a fourth specimen, however, they are present.

Aleuroparadoxus gardeniae, new species
(Fig. 3, A-D)

Differing from *A. iridescens* as described below.

Broadly oval, 0.75-1 mm. long and 0.55-0.75 wide. Marginal teeth about twice as wide as long. Submarginal teeth well-defined. Thoracic and abdominal tracheal pores well-developed, each thoracic one with a conspicuous porous appearing area, abdominal one without a porous appearing area; outer teeth of each pore strongly bent toward each other, median tooth (inner teeth of abdominal pore) extending as far outward as outer ones. Anterior marginal setae 24 microns long, posterior marginal 24-32.

Submargin about 1/18 width of dorsal disk. Submarginal papillae totaling 128-200; gradually recessed behind thoracic tracheal pores; the majority conical with sides converging from near base and 16-20 microns long by 12-14 wide, but usually 2 behind each thoracic tracheal pore practically as wide as long, and some as small as 8 microns long by 6-8 wide and separated by a space of equal or greater width. Submarginal minute setal bases usually just mesad of disk pores.

Modified papillae circular or subcircular, 12-30 microns in diameter; on cephalothorax submedian ones 12-16, and subdorsal ones 20-30 microns in diameter; on abdomen submedian and subdorsal ones 16-28 microns in diameter, the subdorsal ones scarcely or no larger than submedian ones of same segments. Transverse molting suture terminating nearly opposite its midpoint. Submedian depressions rather conspicuous on abdomen, each usually with a sharp tooth at inner end. Cephalic, first and eighth abdominal setae, each 28-50 microns (usually about 40) long;

caudal setae 55-72 microns. Vasiform orifice 52-76 microns long and 48-64 wide; its rim unusually high posteriorly and a deep notch at end. Operculum 52-72 microns long and 48-60 wide. Caudal ridges strongly elevated opposite caudal furrow.

Antenna gradually tapered, not fingerlike at apex. Each middle and posterior leg with a seta about 12 microns long in rugose band. Ventral abdominal setae 24 microns long.

Type. — U. S. N. M. 58225. Mexico, from *Gardenia*.

Hosts. — Ebony, *Gardenia* sp.

Distribution. — Cuba, Mexico.

Described from 7 unmounted paratypes, 61 mounted ones, and from mounted holotype; holotype and 66 paratypes from *Gardenia* from Mexico, 1 paratype from ebony from Mexico, and 1 from *Gardenia* from Cuba; localities unstated except for 1 lot from Guadalajara, Jalisco. Specimens intercepted by inspectors of the Bureau of Entomology and Plant Quarantine, between March 1936 and May 1945.

In the single available third-stage larva of *gardeniae* the dorsal modified papillae are arranged as in that stage of *iridescens*, but they are definitely smaller than the papillae of that species.

Aleuoparadoxus illicicola, new species

(Fig. 3, E-F)

Differing from *A. gardeniae* as described below.

Submargin about 1/16 width of dorsal disk. Submarginal papillae totaling 93-132; abruptly recessed behind thoracic tracheal pores; roundly conical, 6-20 microns long and 6-14 wide, the majority at top of range, usually not conspicuously reduced in size except at posterior end of body, the majority 1/2 to the full width of a large papilla apart.

Modified papillae 8-40 microns in greatest diameter; on cephalic segment outer 2 subdorsal ones 28-40, and inner subdorsal one about 14 microns in diameter; on prothorax submedian and central subdorsal ones about 14, and inner subdorsal one 20 microns in diameter; central subdorsal ones of cephalic segment and of meso and metathorax noticeably larger than subdorsal ones of abdomen. A pair of subdorsal raised areas on cephalic segment, and a broad, irregular, rounded, subdorsal ridge on thorax. Cephalic, first and eighth abdominal setae, each about 20 microns long, the eighth located slightly nearer to posterior suture than to rim of orifice; caudal setae 28 microns. Lingula only slightly

wider across lobes than elsewhere, lateral lobes weak, terminal lobe long and pointed.

Antenna rather strongly tapered, stout fingerlike at apex.

Type. — U. S. N. M. 58226. Gulf Shores, Ala., from *Ilex*.

Hosts. — *Ilex vomitoria* Ait., *Ilex* sp.

Distribution. — Alabama, Louisiana.

Described from numerous unmounted paratypes, 12 mounted ones, and from mounted holotype from *Ilex* sp., Gulf Shores, Ala., L. A. Mayer, January 12 and February 10 (including holotype), 1944, and from 1 mounted paratype from *I. vomitoria*, New Iberia, La., A. W. Blizzard, March 27, 1944.

Aleuoparadoxus rhodae, new species

(Fig. 4, A-C)

Waxy secretion not observed.

Differing from *A. ilicicola* as described below.

Derm light brownish in median and submedian area of cephalothorax and in submedian area of abdomen dorsally, colorless elsewhere, membranous, fairly thick. Elongate ovoid, anterior half noticeable broader than posterior half, 1.10 mm. long and 0.75 wide.

Marginal teeth as wide as long, 21 in 100 microns. Submarginal teeth barely distinguishable. Median tooth of each thoracic, and inner teeth of abdominal tracheal pore, extending only to inner margin of outer teeth of pores. Anterior marginal setae 12 microns long, posterior marginal 16.

Submargin nearly uniform in width. Submarginal ridges lightly, transversely striated between papillae; nearly uniform in width near body margin, but 3-5 uniting near midwidth of submargin and forming a broad ridge which extends into subdorsum; 2 or 3 ridges between those that unite to form wide ridges, well-defined on outer third of submargin then fading into a furrow which narrows between the papillae; the furrow continuing into the subdorsum as a narrow furrow, as a depressed line, or as 2 or 3 depressed lines separated by narrow ridges. Submarginal papillae totaling 107; roundly conical, apices rounded, rather evenly distributed between 10-20 microns long and 8-16 wide, the majority nearly twice the width of an average papilla apart but those opposite thoracic tracheal pores less, and a few others no more than the width of a papilla apart; located on wide ridges on inner third of submargin.

Modified papillae in 4 subdorsal pairs on cephalic segment;

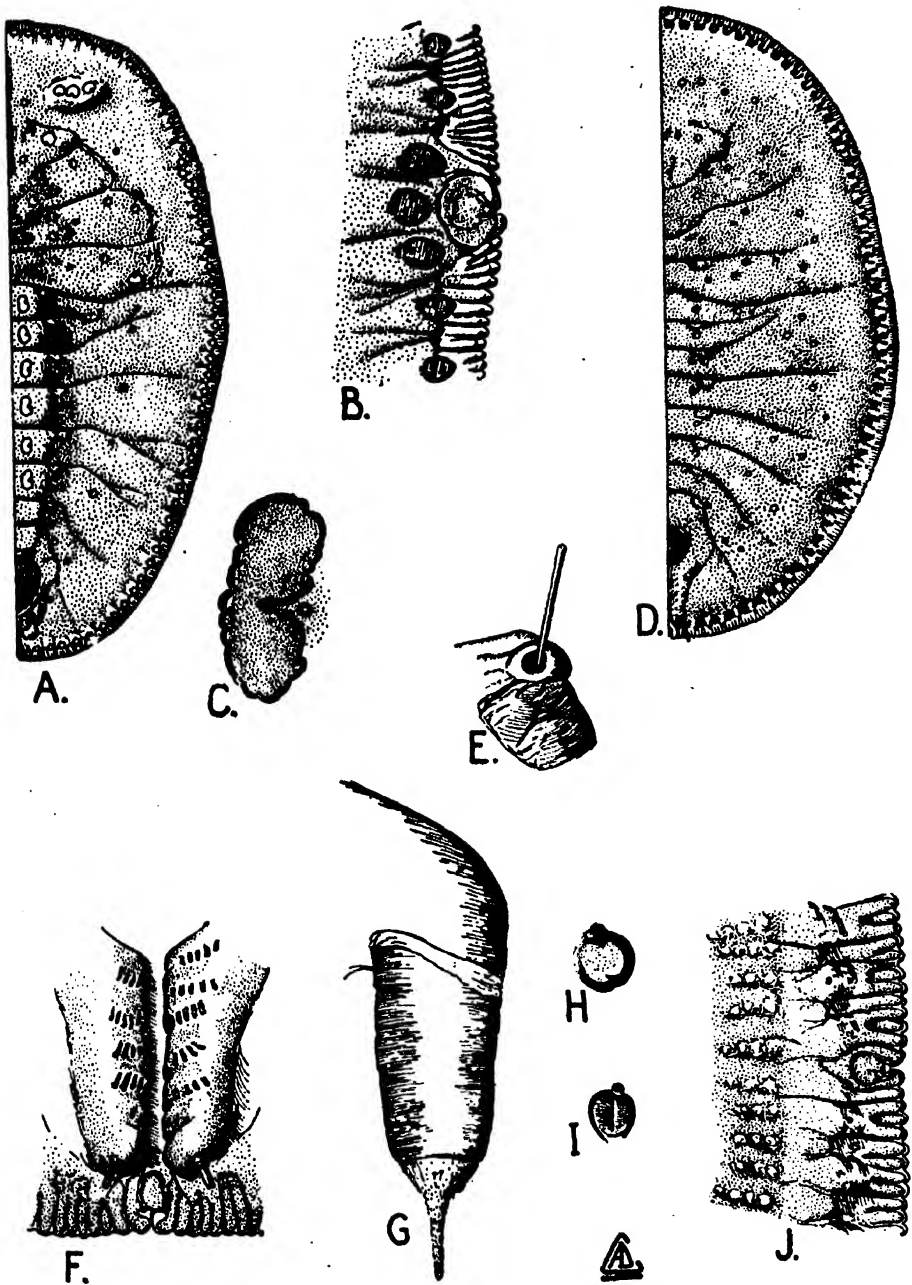


Figure 4. *Aleuoparadoxus rhodae*: A, half of dorsum; B, section of margin, submargin, and subdorsum; C, submedian modified papilla from abdomen. *A. chomellae*: D, half of dorsum; E, cephalic seta and adjacent derm; F, part of posterior segment, dorsal view; G, antenna; H, subdorsal, and I, submedian, modified papilla from third abdominal segment; J, section of margin, submargin, and subdorsum.

the outer 3 subdorsal and the outer submedian one of cephalic segment, and the central subdorsal one of metathorax, subcircular and 20-28 microns in diameter; inner submedian one of abdominal segment 1 and submedian ones of abdominal segments 2-6, longitudinally elongate, 32-40 microns long and 16-18 wide; all others subcircular and 10-16 microns in diameter. Transverse molting suture terminating in outer subdorsum opposite a point slightly posterior to its midpoint; posterior 5 intersegmental sutures extending into outer subdorsum. Teeth at inner ends of abdominal submedian depressions weak. Pockets relatively deep, readily apparent. Cephalic, and eighth abdominal setae, each around 36 microns long; first abdominal and caudal setae broken off at base in available specimen, their bases as large as bases of other setae. Vasiform orifice 84 microns long and 64 wide; its rim very high, particularly near the posterior end, and a tooth in the deep notch at end. Operculum 64 microns long and 54 wide. Lobes of lingula large, well-defined. Ridges rather narrow and small opposite most of orifice, but greatly enlarged and almost meeting over posterior part of caudal furrow.

Antenna abruptly tapered, long fingerlike at apex. Each anterior leg with 2 minute setae anteriorly, mesad of rugose band; each middle and posterior leg with a seta about 20, and one about 8 microns long in rugose band. Ventral abdominal setae 40 microns long.

Type. — U. S. N. M. 58227. Mexico, from *Gardenia*.

Host. — *Gardenia* sp.

Distribution. — Mexico.

Described from mounted holotype intercepted from an unstated locality in Mexico, A. K. Pettit, April 6, 1936.

Aleuroparadoxus chomeliae, new species

(Fig. 4, D-J)

Submarginal waxy filaments short stubs; no waxy filaments, but a very thin layer of transparent wax on dorsum. Palisade of wax very low, vertical.

Oval, widest across abdominal segment 2, 1-1.10 mm. long and 0.60-0.85 wide. Derm colorless, transparent, thin.

Marginal teeth rounded, slightly wider than long, 17-21 in 100 microns. Tracheal pores well-defined, each with a porous appearing area, with outer teeth large, blunt, and strongly bent toward each other; each pore with a very short median tooth not reaching to inner edges of outer teeth, or each thoracic pore

without a median tooth; thoracic pores extending through $3/4$, and abdominal one extending to inner edge of submargin; each pore slightly longer than wide. Anterior marginal setae broken, at least 20 microns long, posterior marginal 36.

Submargin slightly narrower at posterior end of body than elsewhere, about $1/14$ width of dorsal disk at greatest width of body. Submarginal ridges fairly uniform in width near body margin, but 2-4 (usually 3) uniting near distal third of submargin and forming a broad ridge which continues to inner edge of submargin; 1-3 (usually 2) ridges between those that unite to form wide ridges well-defined nearly to midwidth of submargin, then fading into a broad furrow which extends to inner edge of submargin; about the inner half of submargin thus with a broad ridge alternating with a broad furrow; the inner third of ridges and furrows transversely sculptured by slightly elevated areas of various shapes. Submarginal papillae totaling 94-107, in a single row; poorly defined, subcircular, lightly sclerotized areas in derm, about 4 microns in diameter; located at distal third of submargin (at inner end of the middle one of 3 uniting ridges), and a little more than twice as far apart as from body margin. Submarginal disk pores conspicuous, located at the distal end of the broad ridge formed by the merging of 2-4 (usually 3) narrower ridges; porettes just distad of pores, very inconspicuous. Submarginal minute setal bases on broad ridges, somewhat variable in position but the majority about halfway between disk pores and inner edge of submargin.

Dorsal papillae somewhat variable in shape, the majority rounded over the top, but some flat, and a few somewhat conical, a depressed line usually through some abdominal ones; subcircular, 8-12 microns in diameter; porettes in minute indentations in, and disk pores close to papillae, position of subdorsal ones in relation to papillae quite variable, but position of submedian ones usually as shown in figure, 4, *D*. Pairs of papillae located as follows: Cephalic segment, 1 submedian, and 4 (sometimes 3 on half of body) central subdorsal; prothorax, 1 inner and 1 outer submedian, and 1 inner and 1 central subdorsal; mesothorax, 1 inner and 1 outer submedian, and 2 central subdorsal; metathorax, 1 inner and 1 outer submedian, and 1 central subdorsal; first abdominal segment, 1 inner and 1 outer submedian; second, 1 submedian; third, 1 inner and 0 or 1 outer submedian, and 3 or 4 central subdorsal; fourth through sixth, each 1 submedian, and 1-3 (usually 2) central subdorsal; seventh, 1 submedian, and 1-3

central subdorsal; eighth, 1 inner subdorsal; position of subdorsal pores very variable. Rachis absent. Subdorsum moderately sculptured by depressed, somewhat punctate lines. Transverse molting suture curved caudad from midpoint and terminating in outer subdorsum opposite a point slightly posterior to its midpoint. Abdominal segment 7 as long as segment 6. Submedian depressions well-defined, inner ends of some on thorax and of those on abdominal segments 1-7 with 1 or 2 sharp teeth. Pockets fairly deep. Cephalic, and first abdominal setae, each 25-36 microns long; eighth abdominal 14-18 microns, located cephalolaterad of rim of orifice near posterior suture; these setae rounded and slightly enlarged at apices; caudal setae broken in mounted insects, located at ends of caudal ridges anterior to posterior pair of submarginal papillae; bases of all setae somewhat tuberculate. Vasiform orifice cordate, 56-60 microns long and wide (inside rim), located slightly more than its length from posterior suture and about twice its length from posterior body margin; its sides nearly vertical, most of bottom with irregular, transverse, sclerotized lines, but 3 tooth-shaped areas at posterior end; rim rounded over top, about 12 microns long at anterior end of orifice and 4 microns thick elsewhere, a notch in posterior end. Operculum cordate, 48-54 microns long and wide. Lingula narrow at base, its lateral lobes well-defined, its terminal lobe narrow. Furrows beside orifice and caudal furrow well-defined. Ridges well-defined opposite orifice; broadest just posterior to orifice and narrowing slightly from there to posterior end; rounded, and of uniform height opposite caudal furrow, with inner half lightly sculptured transversely.

Antenna strongly tapered, long fingerlike at apex. Each anterior leg with 2 minute setae anteriorly, mesad of rugose band; each middle and posterior leg with a seta about 12, and one about 4 microns long in rugose band. Ventral abdominal setae 28 microns long.

Type. — U. S. N. M. 58228. Rio Pedro Miguel, near East Paraiso, Panama Canal Zone, from *Chomelia*.

Host. — *Chomelia spinosa* Jacq.

Distribution. — Panama Canal Zone.

Described from several unmounted paratypes, two mounted ones, and from mounted holotype, P. C. Standley, January 7, 1924, U. S. N. H.

Aleuoparadoxus sapotae, new species
(Fig. 5, A-F)

Waxy secretions not observed.

Subcircular, widest across abdominal segments 1 and 2, anterior half of body narrower than posterior half, approximately 1 mm. in diameter. Derm black, heavily sclerotized, thick.

Marginal teeth rounded, about twice as wide as long, 17-20 in 100 microns. Submarginal teeth faint. Each thoracic tracheal pore with a well-defined porous appearing area, with outer teeth broad and blunt, their apices narrowly separated, and median tooth extending to inner margins of outer teeth; pore extending to inner edge of submargin, approximately $1/3$ deeper than wide; abdominal tracheal pore without porous appearing area, with teeth similar to thoracic ones but with 2 inner teeth. Anterior marginal setae 18 microns long, posterior marginal broken in available specimen.

Submargin nearly uniform in width, approximately $1/20$ greatest width of dorsal disk. Submarginal ridges uniform in width near body margin, but 2-4 ridges usually elevated and forming higher, broader ridges (on which papillae are located) which alternate with 2-4 lower ridges (between papillae); the higher and lower ridges transversely and longitudinally striated and thus divided into rather square or rectangular areas except close to body margin. Submarginal papillae totaling 122 in available specimen, in a single row; located about at midwidth of submargin and about $1/3$ farther apart than from body margin; the majority roundly conical in outline, scarcely elevated, inconspicuous, and measuring only 4-5 microns long and wide, but 2 papillae immediately anterior, and 2 immediately posterior to thoracic tracheal pore modified similarly to dorsal ones and 10-16 microns in diameter, the inner 2 of these 4 recessed. Submarginal porettes in, and pores cephalad of 2 papillae anterior to tracheal pore and caudad of 2 papillae posterior to tracheal pore; porettes in, pores just mesad of basal ends of other papillae. Submarginal minute setal bases about midway between papillae and inner edge of submargin.

Modified papillae subcircular, flat or slightly rounded over the top. Pairs of papillae located as follows: Cephalic segment, 1 submedian 8 microns in diameter, and 6 or 7 central subdorsal in a row, nearly contiguous, all somewhat rectangular and about 28 microns long by 18 wide or end ones subcircular and about 20 microns in diameter; prothorax, 1 inner submedian 8 microns in diameter, 1 outer submedian 20 microns in diameter, and 1

inner subdorsal 14 microns in diameter; mesothorax, 2 inner subdorsal 18-24 microns in diameter; metathorax, 1 inner and 1 central subdorsal each 8-12 microns in diameter; first abdominal segment, 1 inner and 1 outer submedian each 8 microns in diameter; second, 1 submedian 8 microns in diameter; third through fifth, each 1 submedian and 2 central subdorsal, each about 8 microns (submedian one of fifth segment 12 microns) in diameter; sixth, 1 submedian 12 microns in diameter, and 1 central subdorsal .10 microns in diameter; seventh, 1 submedian 20 microns in diameter, and 1 inner subdorsal 8 microns in diameter; eighth, 1 central subdorsal 6 microns in diameter. A low rachis on abdomen. Subdorsum strongly, and outer submedian area of most segments rather weakly sculptured by depressed, punctate lines extending mesad from submargin. Eyespots crescentic, their axes diagonal to longitudinal axis of body, located at ends of cephalo-thoracic suture. Transverse molting suture curved caudad from its midpoint, recurved and terminating nearly opposite midpoint of mesometathoracic suture, at submargin. Abdominal segment 7 practically as long as segment 6. Submedian depressions well-defined. Pockets fairly deep. Cephalic, first and eighth abdominal, and caudal setae, each about 20 microns long; eighth abdominal ones opposite anterior edge of rim of orifice, slightly nearer to posterior suture than to rim of orifice; caudal setae mesocephalad of submarginal papillae, near inner edge of submargin; cephalic and abdominal setae not tapered, apices blunt. Vasiform orifice cordate, 64 microns long and 60 wide (inside rim), located $1\frac{1}{4}$ times its length from posterior suture and from posterior body margin; its sides vertical, its bottom anteriorly with variously shaped areas and posteriorly with tooth-shaped areas; rim 12 microns long across anterior end and 6-9 microns thick elsewhere, its ends forked at posterior notch, a sharp peglike tooth in notch. Operculum 62 microns long and 58 wide. Lingula with lobes well-developed. Furrows beside orifice deep, caudal furrow as wide as deep. Ridges rather weak opposite orifice, low opposite caudal furrow and broken up into small tubercles or irregularly shaped areas.

Ventrally a narrow, rather membranous, submarginal band; mesad of band except across tracheal folds, a sclerotized area marked by subcircular or angular designs, this area extending to legs but slightly narrower posterior to them, terminating outside abdominal tracheal fold; remainder of ventral surface less densely sclerotized. Antenna gradually tapered, not fingerlike at apex.

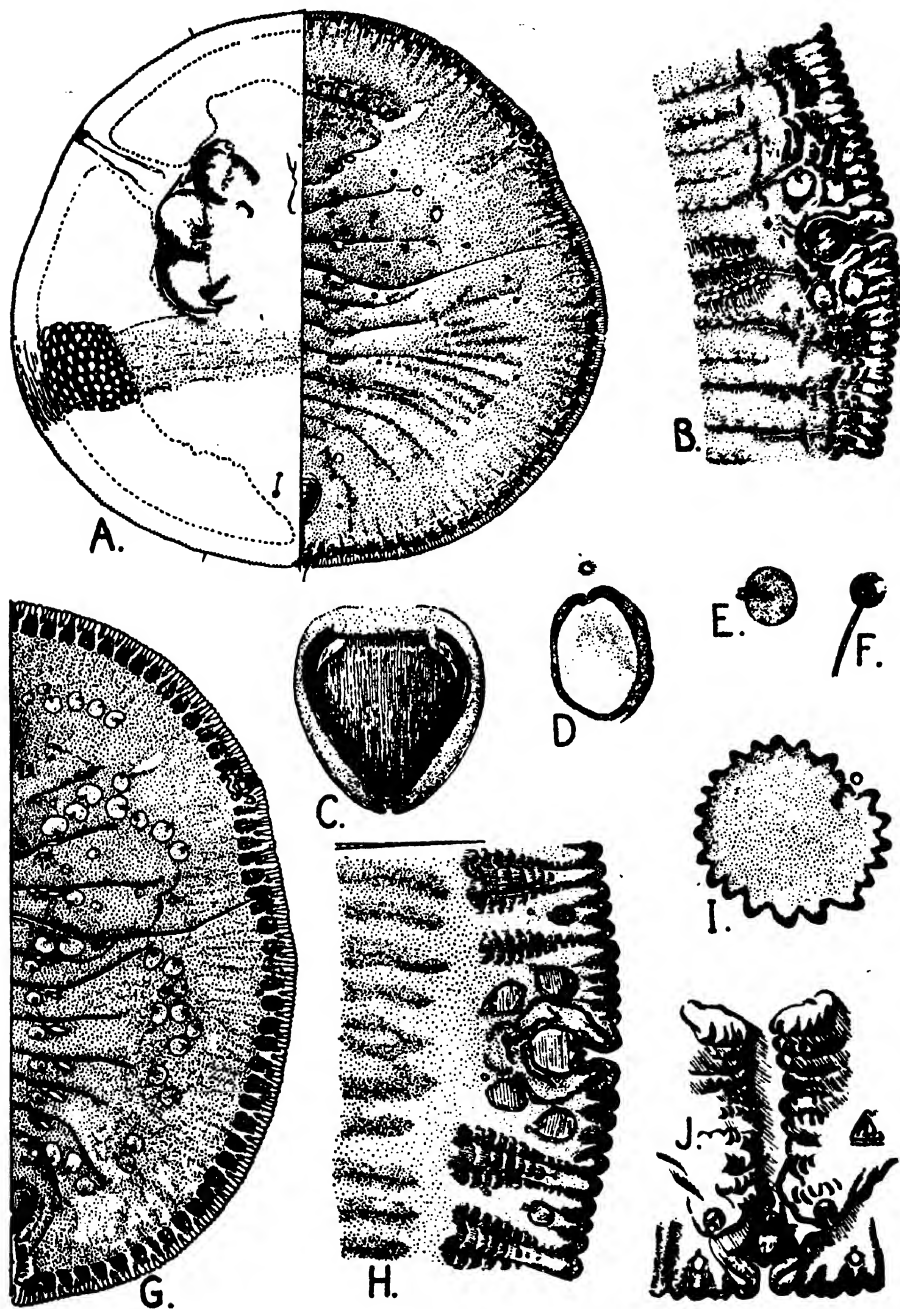


Figure 5. *Aleuoparadoxus sapotae*: A, outline; B, section of margin, submargin, and subdorsum; C, vasiform orifice; D, a larger, and E, a smaller, dorsal modified papilla; F, cephalic seta. *A. trinidadensis*: G, half of dorsum; H, section of margin, submargin, and subdorsum; I, dorsal modified papilla; J, part of posterior segment, dorsal view.

Each anterior leg with 2 minute setae anteriorly, mesad of rugose band, and with 5 spines 9-14 microns long in rugose band; each middle leg with 2 spines about 14, and 2 or 3 spines about 6 microns long in rugose band; each middle and posterior leg with a seta 9, and one about 4 microns long in rugose band. Ventral abdominal setae 20 microns long.

Type. — U. S. N. M. 58229. Consejo, Yucatan Peninsula, British Honduras, from *Achras*.

Host. — *Achras sapota* L.

Distribution. — British Honduras.

Described from mounted holotype, Percy H. Gentle, October 1933, N. Y. B. G.

Aleuoparadoxus trinidadensis, new species
(Fig. 5, G-J)

Differing from *A. sapotae* as described below.

Broadly oval, slightly narrowed on thorax, approximately 1.25 mm. long and 1 wide. Derm dark brown, rather heavily sclerotized dorsally, more membranous ventrally.

Marginal teeth strong, 10-12 in 100 microns. Each thoracic tracheal pore with median tooth short and blunt, not reaching to inner margin of outer teeth; abdominal tracheal pore with 1 short median tooth. Anterior and posterior marginal setae approximately 20 microns long.

Submargin approximately 1/17 greatest width of dorsal disk. Submarginal ridges nearly uniform in width close to body margin, but usually 3 ridges uniting near distal third of submargin and forming a broad ridge which narrows slightly mesad of papilla; the broad ridges alternating with narrower ones which extend from margin and which usually widen mesad of papillae; the narrow ridges and the edges of the broad ridges with transverse rows of minute spines between and mesad of papillae. Submarginal papillae totalling 102-104; located about at distal third of submargin, and about twice as far apart as from body margin; the majority roundly conical and only slightly elevated but some quite conical and elevated, measuring 9-14 microns long and 8-10 wide, but 2 papillae immediately anterior and 2 immediately posterior to thoracic tracheal pore higher, pointed on one side, and about 20 microns in diameter. Pores and porettes mesad of all papillae.

Modified papillae subcircular, flat over the top, their walls broken up into small, blunt or rather sharp spines pointing

vertically. Pairs of papillae located as follows: Cephalic segment, 3-6 (probably 5 usually) central subdorsal in a row, 28-36 microns in diameter (no submedian papillae in available specimens, but a pore and porette directly mesad of cephalic seta, and a papilla possibly developed in some specimens); prothorax, 3 submedian, 2 inner subdorsal, 36-52 microns in diameter; mesothorax, 1 submedian 16 microns in diameter, and 3-5 central subdorsal 36-44 microns in diameter; metathorax, 1 submedian 36 microns in diameter, 1 inner subdorsal 16-20, and 1 or 2 central subdorsal 12-20 microns in diameter; first abdominal segment, 1 inner and 1 outer submedian 44-52 microns in diameter; second through seventh, each 1 submedian 30-40 microns in diameter; third through eighth abdominal segments with a total of 15-20 central subdorsal pairs, measuring 32-48 microns in diameter; third segment, 6-8; fourth, 4 or 5; fifth, 1 or 2; sixth, 2; seventh, 1 or 2, eighth, 1. Transverse molting suture terminating nearly opposite its midpoint. Intersegmental sutures rather deep; 2-4 pairs of small, sharp, submedian spines along posterior edge of anterior 6 abdominal sutures and sometimes on one or both sides of the thoracoabdominal and thoracic ones. Submedian depressions conspicuous. Cephalic, and eighth abdominal setae about 35 microns long, the latter cephalolaterad of rim of orifice, close to posterior suture; first abdominal and caudal setae broken off near base in available specimens, presumably as large as others. Vasiform orifice broadly cordate, 68 microns long and 72 wide, located nearly twice its length from posterior body margin; its entire bottom with variously shaped areas; its rim about 4 microns thick except across anterior end of orifice, its ends not forked at posterior notch, no tooth in notch. Operculum 64 microns long and wide. Lobed area of lingula extending about $\frac{2}{3}$ length of organ, unusually prominent. Caudal furrow about as wide as deep, faintly sculptured, 1-3 small tubercles at posterior end. Ridges broad and rather prominent opposite orifice, fairly high and strongly sculptured transversely opposite caudal furrow.

Ventrally no membranous submarginal band or subcircular or angular designs. Antenna strongly but rather gradually tapered, fingerlike at apex. Legs without spines, each middle and posterior leg with longer seta 12 microns. Ventral abdominal setae 24 microns long.

Type. — U. S. N. M. 58230. Caroni River, south of Dabadie, Trinidad, British West Indies, from *Davilla*.

Host. — *Davilla aspera* (Aubl.).

Distribution. — Trinidad.

Described from mounted holotype and paratype, Britton and Hazen, March 18, 1920, N. Y. B. G.

Aleuoparadoxus truncatus, new species

(Fig. 6, A-G)

Differing from *A. sapotae* as described below.

Subcircular, slightly narrowed on thorax; 1.10-1.25 mm. in diameter. Marginal teeth truncate, their apices smooth or minutely serrate, 10-12 in 100 microns. Each thoracic tracheal pore extending through $\frac{2}{3}$ of submargin, with median tooth extending as far outward as outer teeth. Anterior marginal setae 28 microns long, posterior marginal broken near base.

Submargin approximately $\frac{1}{12}$ greatest width of dorsal disk. Submarginal ridges nearly uniform in width close to margin, but 2 or 3 ridges uniting at about midwidth of submargin (just before papillae) and forming a broad ridge which continues to inner edge of submargin; mesad of papillae the broader ridges alternating with narrower ridges (each usually composed of 1 ridge but sometimes 2 united) extending from margin; the narrower ridges and all but the middle portion of the wider ridges with transverse rows of minute spines between and mesad of papillae. Submarginal papillae totaling 105-121; located just mesad of midwidth of submargin, about $\frac{1}{2}$ as far apart as from body margin; the majority roundly conical or subcircular and around 8 microns long and wide, but 1 mesad of thoracic tracheal pore usually distinctly conical and around 12 microns long by 8 wide. Submarginal minute setal bases mesad or laterad of, and close to submarginal disk pores.

A pair of large (occupying about $\frac{1}{3}$ of diagonal axis of segment) elevated areas on cephalic segment; a curved ridge starting in inner subdorsum on prothorax and terminating in central subdorsum at or on abdominal segment 6, curved inward at each end and at the thoracoabdominal suture. Dorsal papillae not developed with all pores and porettes, variable in size and shape, scarcely elevated or somewhat rounded, usually with a sharp or rather blunt point on one side. Pairs of papillae, and pores when papillae are not developed, located as follows: Cephalic segment, 1 submedian 8 microns in diameter, 3 or 4 central subdorsal disk pores and a minute conical papilla or a rather flat kidney-shaped one 6 microns in diameter associated with, and usually mesad of any one or each pore; prothorax,

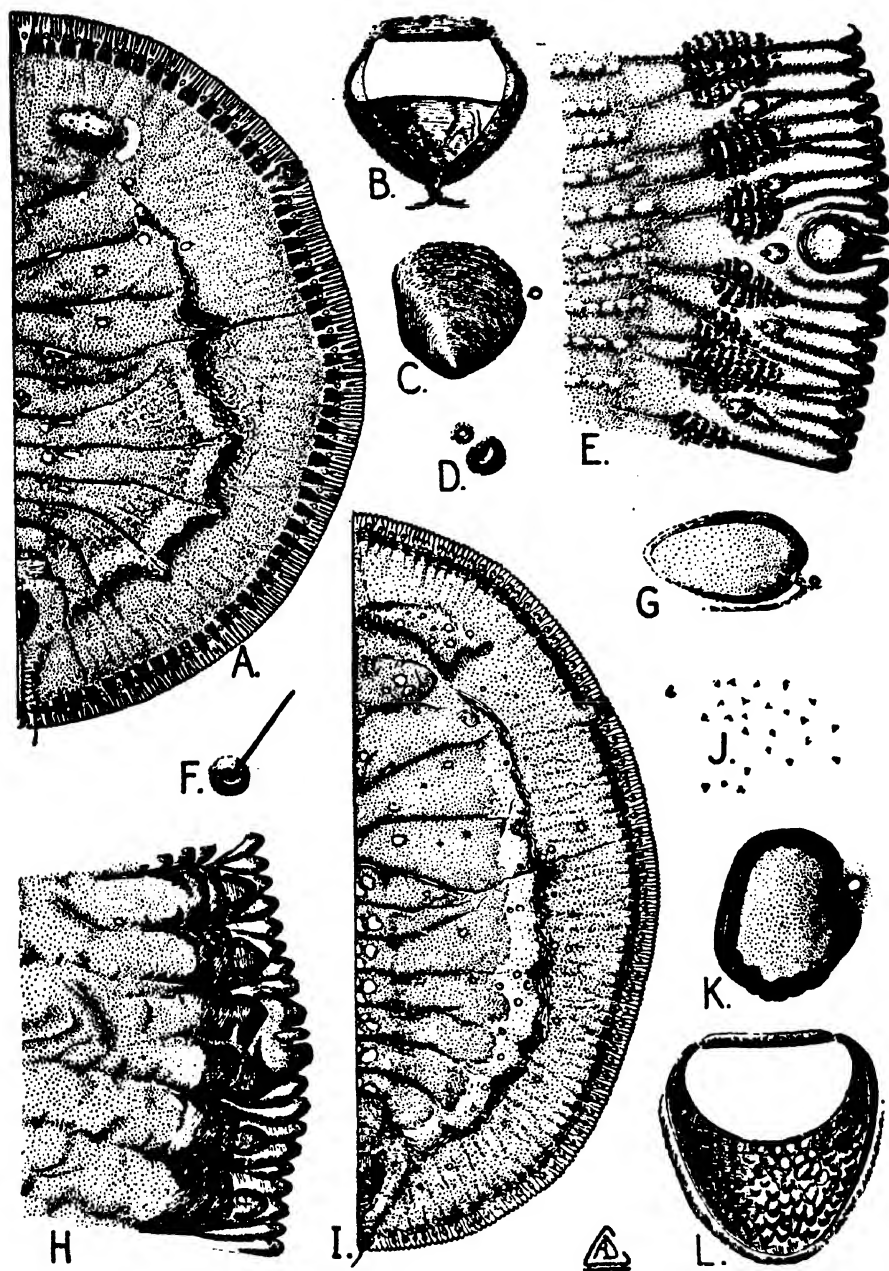


Figure 6. *Aleuoparadoxus truncatus*: A, half of dorsum; B, vasiliform orifice, without operculum or lingula; C, median papilla from second abdominal segment; D, subdorsal modified papilla from abdomen; E, section of margin, submargin, and subdorsum; F, cephalic seta; G, subdorsal modified papilla from thorax. *A. punctatus*: H, section of margin, submargin, and subdorsum; I, half of dorsum; J, minute spines from inner end of thoracic tracheal fold; K, median modified papilla; L, vasiliform orifice, without operculum or lingula.

1 submedian anteriorly, 1 central subdorsal anteriorly, and 1 inner subdorsal posteriorly, each 16-20 microns in diameter, nearly flat, and with or without a sharp, sclerotized elevation on one side; mesothorax, 1 submedian nearly flat, 8-12 microns in diameter, 1 inner subdorsal anteriorly and 1 central subdorsal, each 16-20 microns in diameter; metathorax, 1 submedian anteriorly 20 microns in diameter, with a point, 1 inner subdorsal nearly flat, anteriorly, 6 microns in diameter, and 2 or 3 central subdorsal posteriorly, with points, 4-20 microns in diameter; first, and third through sixth abdominal segments, each 1 submedian 16-20 microns in diameter; seventh, 1 submedian 4-8 microns in diameter; second, 1 median, conical, 20-28 microns in diameter; third through sixth abdominal segments, each 2 central subdorsal disk pores each with a papilla 4-20 microns in diameter or without a papilla; seventh, 1 subdorsal 4 microns in diameter; eighth, 1 subdorsal 8 microns in diameter. Eyespots with axes parallel to longitudinal axis of body. Small, sharp, submedian spines in 2-6 pairs on each side of mesometathoracic suture and abdominal sutures 1-6. Cephalic, first and eighth abdominal setae, each 30-36 microns long, the last cephalolaterad of rim of orifice, close to posterior suture; caudal setae around 80 microns long, located mesad and slightly cephalad of submarginal papillae; setae moderately tapered, apices blunt. Vasiform orifice broadly cordate, 52-60 microns long and 60-68 wide, located about 1 1/2 times its length from posterior suture and nearly 3 times its length from posterior body margin; its sides somewhat convex, its bottom lightly ridged longitudinally; its rim 2-4 microns thick except across anterior end of orifice, apparently not notched at posterior end. Operculum 60-64 microns long and wide, somewhat broadly cordate but posterior end narrowed and pointed, actually longer than orifice but contained in it, depressed near posterior end. Lingula with distal portion fairly broad but lateral lobes not, or posterior pair poorly defined; slightly longer than orifice but contained in it. No furrows close to orifice; caudal furrow deeper than wide, sculptured, a small tubercle at posterior end. A ridge adjacent to orifice, a shallow furrow outside this, and a ridge outside furrow, the outer ridge broadest opposite anterior part of orifice and reaching caudal ridge well posterior to orifice; ridge low opposite caudal furrow, with small, transverse, sculptured ridges.

Ventrally no membranous submarginal band or subcircular or angular designs. Antenna strongly and abruptly tapered,

fingerlike at apex. Legs without spines; anterior leg with rugose band rather indistinct; each middle leg with longer seta 16, and each posterior leg with longer seta 12 microns. Ventral abdominal setae 32 microns long.

Type. — U. S. N. M. 58231. Guarunta, Colon, Honduras, from *Davilla*.

Hosts. — *Davilla matudai* Lund., *D. rugosa* Poir.

Distribution. — Honduras, Mexico.

Described from mounted holotype from *D. rugosa*, Honduras, C. and W. von Hagen, March 1938, N. Y. B. G., and from mounted paratype from *D. matudai*, Javalinero, near Palenque, Chiapas, Mexico, E. Matuda, July 1-9, 1939, N. Y. B. G.

Aleuoparadoxus punctatus Quaintance and Baker
(Fig. 6, H-L)

Aleuoparadoxus punctatus Quaintance and Baker, 1917, U. S. Natl. Mus. Proc. 51: 380-381, illus.; Baker and Moles, 1921, Rev. Chilena Hist. Nat. 25: 628-629, illus.

Submarginal waxy filaments less than $1/2$ as long as width of body. Rosettes of very short waxy ribbons on dorsum. Palisade of wax low, extending diagonally outward.

Differing from *A. truncatus* as described below.

Oval to subcircular, 1.25-1.75 mm. long and 1-1.50 wide. Marginal teeth narrowly curved, as long as wide. Each thoracic tracheal pore without a porous appearing area. Anterior marginal setae 8 microns long, posterior marginal 12.

Submargin about $1/20$ width of dorsal disk. Two to 4 (usually 2 or 3) submarginal ridges uniting at about distal fourth of submargin and forming a broad ridge which extends to inner edge of submargin; 1 ridge alternating with the 2-4 forming the broad ridge, which narrows and disappears about where the 2-4 unite, the broad ridges thus separated by deep furrows; the broad ridges with 3 or 4 low, lightly sculptured, transverse ridges mesad of papillae. Submarginal papillae totaling 132-200; located on broad ridges slightly distad of midwidth of submargin, not quite so far apart as from body margin (the width of a large papilla); broadly and sometimes roundly conical but apices usually bluntly pointed, 10-20 microns long and 10-16 wide; 1 or 2 usually slightly recessed behind each thoracic tracheal pore. Submarginal minute setal bases near inner edge of submargin.

Subdorsal elevated areas and ridges high, terminating at or

on abdominal segment 7. Papillae nearly flat to rounded, usually higher on one side than on the other and some rather conical, subcircular, 8-40 microns in greatest diameter with the majority of submedian and subdorsal ones in the lower, and most of the median abdominal ones in the upper limits of the range. Pairs of papillae located as follows: Cephalic segment, 2 submedian, and 6-15 (usually 10-12) subdorsal; prothorax, 1-3 (usually 1) submedian, and 3-8 (usually 6) subdorsal; mesothorax, 1-3 (usually 1) submedian, and 4-11 (usually 6-8) subdorsal; metathorax, 1-3 (usually 1) submedian, and 7-11 subdorsal; first abdominal segment, 1 submedian; second, 0; third, 5-13 (usually 8-10) subdorsal; fourth, 4-10 (usually 6-8) subdorsal; fifth, 4-9 (usually 4-7) subdorsal; sixth, 3-8 (usually 4-6) subdorsal; seventh, 1 submedian, and 1 or 2 (usually 1) subdorsal; eighth, 1 or 2 (usually 1) subdorsal. Papillae (not pairs) also in median area of abdomen, located as follows: First segment, 2; second, 3-6; third, 2-7 (usually 5); fourth, 2-6 (usually 2-5); fifth, 2-6; sixth, 3-8; seventh, 0-3 (usually 1 or 2). Eyespots absent. No spines along sutures. Submedian depressions faint. Cephalic, first and eighth abdominal setae, each 30 microns long, the last a little nearer to posterior suture than to rim of orifice; caudal setae 40 microns; setae tapered, apices acute. Vasiform orifice cordate, 84-100 microns long and 72-88 wide; located slightly more than its length from posterior suture and practically its length from posterior body margin; its sides vertical, its bottom, sides beneath ridges, and posterior end covered with flat, somewhat quadrate, and tooth-shaped areas; rim of orifice 16-24 microns long across anterior end, 5 microns thick elsewhere. Operculum 80-96 microns long and 68-84 wide, cordate, nearly filling orifice. Lingula shorter than orifice, its lobes moderately developed. Furrows present close to orifice, caudal furrow rather broad and shallow. Caudal ridge low and lightly sculptured transversely opposite caudal furrow.

Ventrally minute spines mesad of legs, at inner end of thoracic tracheal folds, and in abdominal tracheal fold. Each anterior leg with rugose band well-defined, apparently with only 1 minute seta anteriorly, mesad of band; each middle and posterior leg with longer seta about 30, and shorter one about 10 microns. Ventral abdominal setae around 40 microns long.

Type. — U. S. N. M. 20205. Santiago, Chile, from *Lithraea*.

Hosts. — *Azara* sp., *Colliguaya odorifera* Molina, *Duvana* sp., *Lithraea caustica* Miers, *Quillaja saponaria* Molina.

Distribution. — Chile.

Redescribed from numerous unmounted specimens and 85 mounted ones as follows: *Azara* sp., Angol, D. S. Bullock, October 2, 1931; *C. odorifera*, Las Perales, August 1916, and Santiago, November 23, 1917, C. E. Porter; *Duvana* sp., La Ligua, C. E. Porter, January 1915; *L. caustica*, Santiago, M. J. Rivera, October 25, 1905 (including lectotype hereby designated, and syntypes); *L. caustica*, Santiago, C. E. Porter, January 30, 1918; *L. caustica*, Rancagua, intercepted at Washington, D. C., H. Y. Gouldman, September 19, 1921; *L. caustica*, Angol, D. S. Bullock, October 12, 1931; *Q. saponaria*, Santiago, C. E. Porter, March 1913, and 1916.

Frequently this species literally covers both surfaces of leaves.

Trialeurodes Cockerell

Aleyrodes subgenus *Trialeurodes* Cockerell, 1902, Acad. Nat. Sci. Phila. Proc. 54: 283. Genus *Trialeurodes* Cockerell, Quaintance and Baker, 1915, U. S. Dept. Agr., Bur. Ent., Tech. Ser. 27: XI. (Genotype, *Aleyrodes pergandei* Quaintance, by original designation.)

The genus *Trialeurodes* and its North American species⁵ are treated comprehensively by the writer in a paper which has already been submitted for publication. On this account the genus is not discussed further in the present paper. Its distinguishing characteristics are given in the key to the genera of the *Trialeurodini*.

Aleurotithius Quaintance and Baker

Aleurotithius Quaintance and Baker, 1914, U. S. Dept. Agr., Bur. Ent., Tech. Ser. 27: 106; Sampson, 1943, Ent. Amer. (n. s.) 23: 214. (Genotype, *Aleurotithius timberlakei* Quaintance and Baker, by original designation.)

Living on the lower surface of leaves. Young pupae relatively thin, mature ones thicker, the ventral surface swollen and encircled by a thin band of whitish, translucent, striated wax which extends downward from just within the body margin; a thin layer of colorless or whitish wax on dorsal and ventral surfaces. Waxy rods emanating from submarginal disk pores or porettes and supported on papillae.

⁵) Few members of the genus *Trialeurodes* not occurring in the North American fauna are available to the writer; consequently such species are omitted from the study. Treatment of exotic forms must await the accumulation of additional material.

Subcircular to oval; ventral surface convex. Colorless, yellowish, or brownish, lightly to moderately sclerotized.

Body margin smooth or slightly indented. Posterior marginal setae present. Submargin wide. Submarginal ridges nearly flat, separated by deep, narrow furrows. Submarginal disk pores, porettes, papillae, and minute setal bases present.

Dorsal disk pores, porettes, and papillae present. A pair of submedian setae on cephalic segment, on first or second and eighth abdominal segments, and a median caudal pair. Cephalothoracic suture inevident in median area, promesothoracic one with a median rearward bend, thoracoabdominal one parallel to middle portion of transverse molting suture, other intersegmental sutures deep and nearly straight in median and submedian area; ends of abdominal sutures 1 and 2 bent forward, ends of 3 and 4 nearly straight, ends of 5 and 6 bent caudad slightly, 7 strongly bent caudad. Median length of cephalic segment approximately $1 \frac{1}{3}$ times that of thorax; pro, meso, and metathorax subequal in length; abdominal segments 1-6 subequal in length, segment 7 no more than $\frac{1}{3}$ length of segment 6, each much shorter than segment 8. Pockets well-defined. Submedian depressions indistinct, pairs apparently arranged as follows: One in each thoracic suture, 1 adjoining posteriorly the thoracoabdominal and each of abdominal sutures 1-6. Vasiform orifice short, subhemispherical, at least its width from posterior suture and at least 3 times its length from posterior body margin, its rim thin, its bottom extending forward almost the length of the orifice. Operculum transverse, wider than long, not filling orifice; ventrally, not irregular near base, with numerous minute spines, a pair of small setae near posterior margin. Lingula spatulate, contained in orifice, without lobes or with minute ones; with minute spines; a pair of minute setae laterally near apex and a pair of small setae ventrally at apex. Caudal furrow absent or shallow. Caudal ridges absent.

Marginal wax tubes usually apparent. Tracheal folds not apparent. Thoracic spiracles sunken in derm, a sclerotized oblong plate around opening of each, outer part of opening and plate with minute slender spines; posterior abdominal spiracles smaller than thoracic, larger than anterior abdominal ones, located opposite widest part of orifice. Beak apparently 2-segmented, 1 pair of minute setae at apex and 3 pairs slightly before apex. Antenna 2-segmented, reaching to anterior spiracle; basal segment

approximately $1/4$ length of distal one; apex of the latter narrowed, fingerlike, bearing numerous minute spines, and 3 very short sensory setae. Leg appearing indistinctly 3-segmented, several minute to short setae around basal area, 2 minute setae just before disk and 1 just before these; disk much smaller than leg at disk attachment. One pair of adhesive sacs. Ventral abdominal setae located more than their length from posterior abdominal spiracles. Male organ a bifid sac.

The genus *Aleurotithius* is closely related to *Trialeurodes*. It is represented by two known species, one from California and one from Mexico.

Third-stage larvae of the genus differ from the few available ones of other genera of the Trialeurodini, in having the submargin wide in relation to the dorsal disk, and in having the vasiform orifice short and broad, the operculum transverse, and the lingula short and without lobes. No differences have been found between the adults of *Aleurotithius* and *Trialeurodes* which appear to the writer to be of generic significance.

Key to Species of *Aleurotithius*

1. Thoracic tracheal pore areas not indicated; submarginal papillae set off from dorsal ones and differing from the latter in shape, short fingerlike, their apices broadly rounded; majority of submarginal disk pores mesad of papillae; dorsal papillae mammiform, usually exhibiting little variation in size on individual segments; vasiform orifice about 3 times its length from posterior body margin, its sides nearly vertical, ridged; ventral abdominal setae about 9 microns long (Fig. 7, A-I)..
timberlakei Quaintance and Baker
- Thoracic tracheal pore areas well-defined; submarginal papillae not set off from dorsal ones and not differing from the latter in shape, conical, their apices acute; majority of submarginal disk pores distad of papillae; dorsal papillae conical, usually exhibiting considerable variation in size on individual segments, the inner ones 2-3 times larger than the outer ones; vasiform orifice about 5 times its length from posterior body margin, its sides somewhat convex, not ridged; ventral abdominal setae about 24 microns long (Fig. 7, J-N).....
mexicanus, new species

Aleurotithius timberlakei Quaintance and Baker (Fig. 7, A-I)

Aleurotithius timberlakei Quaintance and Baker, 1914, U. S. Dept. Agr., Bur. Ent., Tech. Ser. 27: 106-107, illus.

Scattered on the lower surface of the leaf.

Palisade of wax as high as width of body, slightly converging near the bottom and with the ventral layer of wax, forming a cuplike structure containing the swollen ventral surface of the body. Straight or curled, white, wooly, waxy filaments extending outward from submargin for a distance a little less than the width of the body; similar but 4-5 times longer filaments rising upward from the dorsum in tufts.

Subcircular to oval, mature pupae strongly convex dorsally and ventrally, 0.60-1 mm. long and 0.50-0.75 wide (males in lower brackets of figures). Dorsum yellowish or light brownish, lightly sclerotized, moderately thick; ventral surface colorless, membranous, thin.

Body margin smooth or minutely indented. Tracheal pore areas not indicated. Anterior marginal setae 2 microns long, posterior marginal 4. Submargin strongly deflexed, approximately $\frac{1}{5}$ width of dorsal disk; submarginal ridges varying in width, 10-14 in 100 microns at body margin; furrows between ridges extending through part or all of submargin, and some extending to central subdorsum. Submarginal papillae totaling 113-163, usually in an irregularly single to double (sometimes triple in spots) row terminating well before median line posteriorly; the majority directed diagonally outward; shaped somewhat like the end of a finger, apices broadly rounded, 8-12 microns long and 6-10 wide; located at inner edge of submargin. Majority of submarginal disk pores mesad of papillae but a few usually between, or slightly distad of them, the majority approximately the length of a papilla from papillae; the pores elevated and appearing like minute tubercles; submarginal porettes located at bases of papillae, very minute, nearly indistinguishable. Submarginal minute setal bases with very minute setae distinguishable, about in line with disk pores; exact number indeterminable in available specimens but at least 5 pairs on cephalothorax and 6 on abdomen, presumably no more than 15 pairs present.

Dorsum with numerous mammiform papillae arranged in subdorsal groups on each thoracic segment and on each of abdominal segments 3-8, those of posterior 3 or 4 segments extending nearly or actually to submarginal papillae, others extending from submedian area to central or outer subdorsum; thoracic ones on elevated areas. Pairs of papillae located as follows: Prothorax, 5-13; mesothorax, 9-17; metathorax, 9-13;

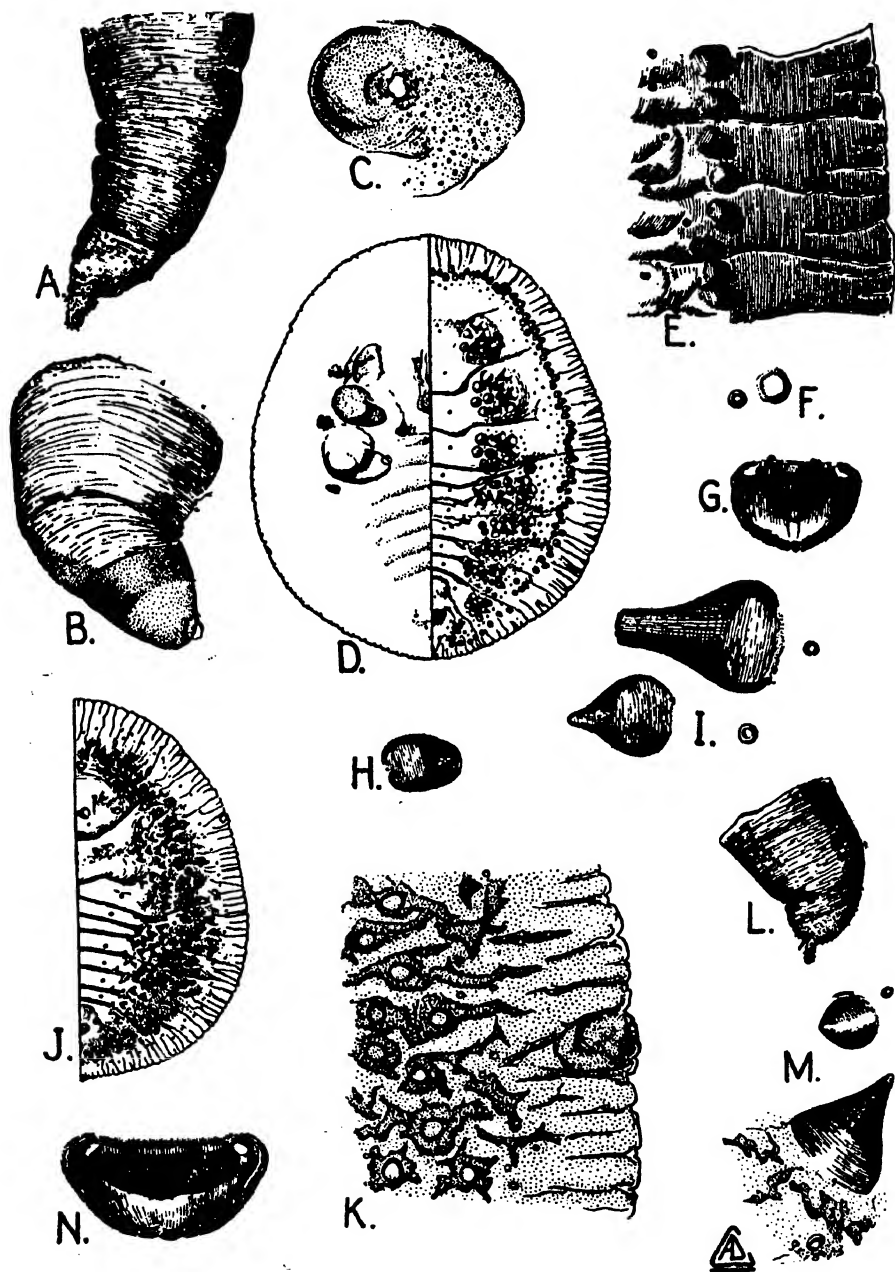


Figure 7. *Aleurotithius timberlakei*: A, antenna; B, posterior leg; C, opening of thoracic spiracle, and adjacent derm; D, outline; E, section of margin, submargin, and subdorsum; F, submedian disk pore and porette; G, vasiform orifice; H, submarginal papilla; I, subdorsal papillae. *A. mexicanus*: J, half of dorsum; K, section of margin, submargin, and subdorsum; L, antenna; M, subdorsal papillae; N, vasiform orifice, $\times 742$.

third abdominal segment, 6-27 (usually 16-27); fourth, 9-21; fifth, 10-19; sixth, 8-18; seventh, 6-12; eighth, 1-6 (usually 2-4); 12-28 microns long and 8-24 wide (diameter at base), those on posterior 2 segments usually much smaller than others, usually little variation in size on individual segments; the disk pores rather close to, or some distance from papillae, elevated similarly to submarginal ones; porettes usually in bases of papillae, very minute and almost indistinguishable. Disk pores and porettes without conspicuous papillae associated with them also present, the porettes usually about 3 times the diameter of a pore from pores and located in a raised area 1-2 times the diameter of a pore and suggestive of a rounded papilla; pairs usually arranged as follows: Cephalic segment, 1 submedian posteriorly, and 1 subdorsal anteriorly; prothorax, 1 submedian, and 1 subdorsal; meso and metathorax, each 2 submedian; each of first to seventh abdominal segments, 1 submedian. Area just posterior to pockets, swollen. Transverse molting suture nearly straight in the middle, bent forward in inner subdorsum, terminating at the submargin nearly opposite mesometathoracic suture; cephalo-thoracic suture apparently present in subdorsum as an almost longitudinal depression; thoracic sutures reaching to outer subdorsum; abdominal sutures 3-5 defined to outer subdorsum, and sutures 6 and 7 usually defined to submargin. Abdominal segment 7 about $1/3$ length of segment 6. Cephalic, and second abdominal (corresponding to the first abdominal setae in most species of the Trialeurodini, but located near anterior edge of segment 2 in available specimens) setae about 4 microns long and almost subdorsal in position; eighth abdominal 30-40 microns, located cephalolaterad of orifice, about halfway between it and posterior suture; caudal setae 28-36 microns, located approximately $1\frac{1}{2}$ times as far from vasiform orifice as from body margin, meso-caudad of papillae but distinctly nearer to them than to body margin. Vasiform orifice subhemispherical, broadly curved posteriorly, 36 microns long and 44 wide, located about $1\frac{1}{3}$ times its length from posterior suture and nearly 3 times its length from posterior body margin; rim absent from anterior end of orifice, usually a shallow notch at posterior end, 1 or 2 rounded teeth in notch; sides of orifice vertical or slightly convex, somewhat ridged; bottom extending cephalad almost to anterior margin of operculum, a few tooth-shaped areas posteriorly. Operculum transverse, straight or slightly curved on posterior margin, 16-20

microns long and 28-34 wide. Lingula without lobes or with 2 pairs of minute lateral ones and a minute unpaired terminal one, 20 microns and 14-16 wide, its longer setae slightly shorter than width of lingula. Caudal furrow absent, a moderately deep furrow around posterior part of orifice.

Ventrally, a pair of small mesothoracic tubercles with numerous minute needlelike spines. Anterior abdominal spiracles approximately $\frac{1}{4}$ the size of the posterior abdominal pair. Ventral abdominal setae about 9 microns long.

Type. — U. S. N. M. 14779 (correction for "1479", op. cit., p. 107). Santa Ana, Calif., from *Eriodictyon*.

Host. — *Eriodictyon crassifolium* Benth.

Distribution. — California.

Redescribed from numerous unmounted specimens and approximately 200 mounted ones as follows: San Jacinto Mountains, Timberlake and Bridwell, July 14, 1912; Del Mar, P. H. Timberlake, July 26, 1912; received from H. S. Smith, April 28, 1913, no location stated on material but according to Quaintance and Baker (op. cit., p. 106), from Santa Ana, collected by R. K. Bishop; Santa Ana, R. K. Bishop, May 17, 1913, Quaintance No. 8830 (including lectotype hereby designated, and syntypes); San Diego, H. S. Smith, April 7, 1920.

The lower surface of many of the leaves examined was nearly covered by insects, but no specimens were found on the upper surface. The waxy filaments arising from the dorsum of *timberlakei* resemble the tomentum of the leaves of the host, and conceal the bodies of the insects.

Both larvae and adults of this species are at hand. In the five broken, apparently third-stage larvae available, papillae are absent; the vasiform orifice, operculum, and lingula are similar to those of the pupae except for the absence of a notch and teeth from the rim of the orifice; the second abdominal setae are located as in the pupae. The imagos are rendered distinctive by their long mouthparts and by the long ovipositors of the females, both of which doubtless are adaptations to their habitat.

Aleurotithius mexicanus, new species

(Fig. 7, J-N)

Differing from *A. timberlakei* as described below.

Located in the angles between the small veins and the midvein of the leaf.

Dorsal waxy filaments glassy, not wooly, submarginal ones not differentiated from dorsal ones, arising in a band encircling the body and reaching from submedian area to submargin; other submedian filaments in 1 or 2 pairs on pro and mesothorax, and in 0 or 1 pair on metathorax; inner filaments longer than outer ones.

Dorsum dark brown in band of papillae, yellowish or pale brownish elsewhere.

Tracheal pore areas plainly indicated by pore-shaped designs on the submarginal ridges, the thoracic designs usually more distinct than the abdominal one; the margin at each area usually with 3-5 short, broad teeth. Anterior marginal setae not observed, posterior ones about 15 microns long. Submargin approximately 1/7 width of dorsal disk; some of the longer submarginal furrows extending sinuately across the entire subdorsum. Submarginal minute setal bases mesad of outer disk pores, indistinct, without distinguishable setae. Submarginal papillae not separated from subdorsal ones; papillae arranged somewhat segmentally and also in a band around body extending from submargin to submedian area, also a few submedian ones on cephalothorax; majority directed vertically, or diagonally outward; all papillae conical and their apices acute, but the outer, smaller ones stouter than the inner larger ones, sometimes rather strongly constricted near apices; the inner ones 16-24 microns long and 12-20 wide, the outer ones 8-16 microns long and 8-12 wide, the cephalothoracic submedian ones as large as inner ones of band. Pairs of papillae located as follows: Cephalic segment, 8-15 (usually 10-12) in band, and 1 submedian; prothorax, 9-18 (usually 13-15) in band, and 1 or 2 (usually 2) submedian; mesothorax, 22-27 in band, and 1 or 2 (2 disk pores present but a papilla sometimes associated with only 1) submedian; metathorax, 9-14 in band, and 0 or 1 (1 or 2, usually 2, disk pores) submedian; third abdominal segment, 21-24; fourth, 8-15 (usually 11-13); fifth, 7-11; sixth, 5-11 (usually 8-10); seventh, 4-8 (usually 5-8); eighth, 5-10 (usually 6-8), some close to or on median line. Disk pores not

elevated, those with which outer papillae are associated located $1/4-1/2$ the distance between these papillae and body margin; majority of other disk pores located otherwise than mesad of, and at least the width of the papillae associated with them from those papillae; in addition to these disk pores there are 2 submedian pairs on the first abdominal segment, and there is sometimes 1 submedian pair on one or all of the third through the sixth abdominal segments; many disk pores with center appearing faintly honeycombed. Derm rugose in band of papillae. Area between pockets and eighth abdominal setae, swollen. Transverse molting suture curved caudad from center, recurved in inner subdorsum and terminating at submargin about opposite its midpoint; cephalo-thoracic suture faintly indicated by a short diagonal furrow in subdorsum, or not apparent; other intersegmental sutures defined to inner or central subdorsum and abdominal sutures 6 and 7 continued to outer subdorsum or submargin. Cephalic setae located rather near median line; first abdominal located on posterior edge of segment 1, at end of abdominal suture 1, or on anterior edge of abdominal segment 2; eighth abdominal located farther cephalad of orifice and near posterior suture; each of these setae 24-32 microns long; caudal setae 2-4 microns, located twice as far from vasiform orifice as from body margin and about midway between papillae and body margin, 1 seta usually absent and its base absent or poorly defined. Vasiform orifice 16-20 microns long and 28-32 wide, located approximately twice its length from posterior suture and about 5 times its length from posterior body margin; rim usually without a notch and teeth; sides slightly convex, not ridged; bottom extending as far forward as anterior margin of operculum, without tooth-shaped areas. Operculum 8-12 microns long and 26-30 wide. Lingula without lobes, slightly narrowed posteriorly, 8-10 microns long and 10-12 wide.

Ventrally no mesothoracic tubercles. Adhesive sacs very inconspicuous, sometimes not apparent. Ventral abdominal setae about 25 microns long.

Type. — U. S. N. M. 58232. Mexico.

Host. — Unknown.

Distribution. — Mexico.

Described from several unmounted paratypes, five mounted

ones, and from mounted holotype from Mexico, no other collection data.

The available pieces of leaves of the host are so fragmentary that they cannot be identified. They are moderately hairy over most of the surface and are rather densely so in the angles between the midvein and the other veins where the insects are located.

In the only available third-stage specimen there are a few subdorsal papillae, and the area just posterior to the pockets is strongly swollen. The vasiform orifice, operculum, and lingula are similar to those of the pupae.

Illustrations

Magnifications for the different drawings are uniform for all species, except in one instance noted in the legend, and are approximately as follows: Outline, or dorsal half of body, $\times 67$; section of margin, submargin, and subdorsum, all or part of posterior segment, vasiform orifice, and leg, each $\times 327$; papilla, seta, lingula, antenna, and spiracle, each $\times 742$.

The divided drawings of the body show the dorsal half on the right and the ventral half on the left. In the illustrations of the entire body or of the dorsal half, the porettes, submarginal minute setal bases, and the sculpturing of the entire surface are not portrayed. Figures illustrating a section of the margin, submargin, and subdorsum are taken from the thoracic tracheal pore area.

The illustrations were prepared by Arthur D. Cushman, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture.

Ueber Curculioniden, vorwiegend aus dem Gebiet der Anden (Col. Curc.).

(111. Beitrag zur Kenntnis der Curculioniden).

Von E d u a r d . V o s s , z. Zt. Oesede/Osnabrueck.

(Mit 4 Textfiguren)

Im Anschluss an die Bearbeitung der Curculioniden Perus aus der Ausbeute von Prof. Dr. T i t s c h a c k, Hamburg, sandte mir Prof. K. M a n d l, Wien, einige weitere Curculioniden aus dem Gebiet der Anden zu, die von Herrn T i p p m a n n, Wien, gesammelt wurden. Sie stellen eine wertvolle Ergaenzung vorgenannter Arbeiten dar, und wie mir brieflich mitgeteilt wurde, sind Typen und das uebrige Material gut erhalten geblieben, sodass ich Gelegenheit nehmen moechte, die Ergebnisse des Studiums desselben an dieser Stelle zu veroeffentlichen.

Subfamilie Brachyderinae

Tribus *Cyphini*, Subtribus *Cyphina*

1. *Amitrus alutaceus* Er.

Die Nominatform liegt vor aus Bolivien: Viacha in 4100 m Hoehe (30.3.1938).

2. *Amitrus coriaceus* Er.

Auch von dieser Art liegt nur die Nominatform vor aus Peru: Sta. Lucia in 4038 m Hoehe (14.4.1938).

3. *Amitrus nitens*, n. sp.

Kopf quer, mit kurzen, leicht konischen Schlaefen und ziemlich kraeftig vorgewoelbten, fast halbkugeligen Augen. Ruessel etwas breiter als lang, von der Basis bis zur Mitte leicht verschmaelert, in der apikalen Haelfte parallelseitig. Kopf und Ruessel mit schmaler Mittelfurche, diese an der Basis zu einem groesseren, ovalen Gruebchen erweitert. Punktierung maessig stark und dicht. Fuehlerschaft etwas laenger und schlanker als bei den vorhergehenden Arten, im Spitzenteil auch etwas weniger stark gekeult; das 1. und 2. Glied gestreckt, das 2. Glied kaum laenger als das 1. Glied, die uebrigen Glieder etwas breiter als lang mit Ausnahme des 7. Gliedes, das so lang wie breit ist. Keule etwa

2½ mal so lang wie dick. Halsschild breiter als lang, seitlich leicht und gleichmaessig gerundet, der Vorderrand etwas schmäler als die Basis, die Mitte mit feiner Laengsfurche, die im ganzen etwas flach eingedrueckt ist. Punktierung auf der Scheibe fein und dicht, seitlich kraeftiger und querrunzig verlaufen, die Zwischenstege flach granuliert erscheinend. Schildchen kurz und dreieckig. Fluegeldecken doppelt so lang wie breit, breiter als der Halsschild; geschultert, aber ohne Schulterbeule; zur Mitte der Decken flach gerundet verbreitert, dann zur Spitze etwas kraeftiger gerundet verschmaelert, diese jedoch nicht konkav ausgezogen; im ganzen also etwa eifoermig gebildet, ganz aehnlich wie bei den matten *Amitrus*-Arten. Punktstreifen kraeftig, die Punkte quer, durch schmale Zwischenstege getrennt; Zwischenracume etwas schmäler als die Streifen, leicht gewoelbt, etwas querrunzig. Unterseite undeutlich punktiert, die letzten drei Abdominalsegmente fein und dicht punktiert. Schenkel kraeftig gekeult; Tibien breit und kraeftig, die vorderen schwach s-foermig geschweift, innen mit Kerbhoeckerchen besetzt. Koerbchen der Tibienspitzen geschlossen.

Faerbung schwarz. Schenkel, Vorder- und Mittelbrust lang und greis behaart; die Tibien ebenfalls, jedoch vorwiegend schwarz behaart. Laengere abstehende Haare von vorwiegend greiser Faerbung finden sich auf der Spitze der Fluegeldecken. Die Seiten der Fluegeldecken von den Hinterhueften ab nach hinten dicht hellockerfarbig beschuppt, die Schuppen laenglich, hirsekornartig. Dichte, leicht kupferfarbene Schuppenflecken befinden sich vor und hinter den Vorderhueften, sowie auf den Seiten der Mittel- und Hinterbrust.

Laenge 10,5-12,5 mm.

Bolivien: El Alto in 4100 m Hoehe (2.4.1938).

Die nicht mattierte Oberflaeche und der etwas schmalere Fuehlerschaft sind die einzigen durchgreifenden Merkmale, die diese Art von den uebrigen Arten (*alutaceus* Er., *coriaceus* Er. und *rugicollis* m.) trennen. Die Augen sind hinten nur schwach und undeutlich gesockelt.

4. *Amitrus* (*Squamamitrus*) *nitidicollis*, n. sp.

Kopf und Ruessel ganz aehnlich wie bei *A. nitens* m. gebildet, die Mittelfurche jedoch gleichmaessiger mehr vertieft, die Augen wenig kleiner und vielleicht noch mehr ausgesprochen halbkugelfoermig. Auch der Fuehlerschaft ist aehnlich gebaut, die Geisselbildung jedoch weicht etwas ab: das 2. Glied ist deutlich laenger als das 1. Glied, die uebrigen Glieder sind durchweg

noch etwas laenger als breit. Keule etwa $2\frac{1}{2}$ mal so lang wie dick. Halsschild breiter als lang, im vorderen Drittel am breitesten, von hier kraeftig nach vorn gerundet verschmaelert, nach hinten schwach geradlinig verschmaelert; der Vorderrand schmal abgeschnuert, die Scheibe in der vorderen Haelfte mit tieferer, breiter Mittelfurche, die an den Raendern schwach runzlige Vertiefungen aufweist. Punktierung im uebrigen gleichmaessig ziemlich fein und dicht. Seitlich ist die Scheibe auf der ganzen Laenge vertieft und hier kraeftiger runzlig punktiert. Schildchen dreieckig. Fluegeldecken fast doppelt so lang wie breit; die Schultern verrundet, in der basalen Haelfte annaehernd parallelseitig, schwach gerundet, nach hinten mehr gerundet verschmaelert, im ganzen etwas verkehrt eifoermig. Punktstreifen kraeftig, die Punkte rundlich oder etwas laenger als breit, durch schmale Zwischenstege getrennt; Zwischenraeume oben annaehernd so breit wie die Punktstreifen, seitlich viel breiter als dieselben, ueberall fein und dicht unregelmassig punktiert. Auch die Unterseite fein und dicht unregelmassig punktiert. Tibien kraeftig, die vorderen und mittleren im Spitzenteil nach innen gebogen, alle Tibien innen mit kraeftigen Kerbhoeckerchen. Tarsen relativ kraeftig und gedrungen.

Faerbung schwarz; Halsschild auf der Scheibe sowie die Schenkel mit Ausnahme der Kniee und die Tibien mit Ausnahme des Spitzenteils rot, die Vordertibien jedoch ganz schwarz. Ruessel, Kopf und Halsschild mit kurzen, die Fluegeldecken mit langen, abstehenden, dunklen Haaren auf der ganzen Laenge besetzt, zwischen denen aber kuerzere eingemischt sind. Die Fluegeldecken mit runden, kleinen, wenig dicht angeordneten blaeulichen Schuppen bekleidet.

Laenge 9-11 mm.

Ein Exemplar aus Bolivien weicht gegenueber der vorstehenden Beschreibung in einigen Punkten ab: Der Halsschild ist bis zur Abschnuerung des Vorderrandes parallelseitig und feiner, etwas weniger dicht punktiert. Alle Tibien sind schwarz.

Peru: Sta. Lucia in 4038 m Hoehe (14.4.1938); Bolivien: Oruro (Bock leg.).

Wenn diese Art auch nahe an *Amitrus nitens* m. anschliesst, so sind doch folgende Merkmale fuer die Untergattung *Squamamitrus* neu: Der quere, parallel- oder nahezu parallelseitige Halsschild und seine apikale Abschnuerung, die auf den ganzen Fluegeldecken angeordnete lang abstehende Behaarung und das

Auftreten von runden Schuppen auf den Fluegeldecken. Diese abweichenden Charaktere gaben den Anlass zur Abtrennung dieser Untergattung. Damit setzt sich die Gattung *Amitrus* aus folgenden Untergattungen zusammen:

1. Fluegeldecken mit runden Schuppen gleichmaessig maessig dicht besetzt. Halsschild mehr oder weniger parallelseitig, am Vorderrand ziemlich akut abgesetzt. Fluegeldecken auf der ganzen Laenge mit langen abstehenden Haaren bekleidet (Peru, Bolivien).....
1. *Squamamitrus* Voss
- Fluegeldecken hoechstens an den Seiten mit hirsekornartigen Schuppen abstechend beschuppt. Halsschild mehr oder weniger gleichmaessig gerundet 2
2. Fuehlerschaft in der Regel breiter und gedrungener, die Augenmitte wenig ueberragend. Basis der Fluegeldecken gerade abgeschnitten, letztere im ganzen seitlich weniger gerundet. Die apikale Partie der Decken in der Regel lang abstehend greis behaart (Peru, Bolivien)..
2. *Amitrus* s. str.
- Fuehlerschaft schlanker, gekuellt, den Augenhinterrand erreichend. Basis der Elytren besonders beim Maennchen halbrund ausgeschnitten und seitlich etwas lappenartig zum Schildchen vorgezogen. Elytren besonders beim Weibchen breit und mehr elliptisch geformt, an der Spitze nicht abstehend greis behaart (Peru)..... 3. *Pernaupactus* Voss

Subtribus *Symmathetina*

5. *Canephorus jelskyi* Kirsch
Bolivien: El Alto in 4100 m Hoehe (30.3.1938).

Subfamilie Rhytirrhinae

6. *Rhigopsidius tucumanus* Hell.
Peru: Sta. Lucia in 4038 m Hoehe (14.4.1938).

Subfamilie Cylindrorrhinae

7. *Adioristus squamiger*, n. sp.

Kopf quer, fast sphaerisch. Augen klein, schwach vorgewoelbt; Stirn an der schmalsten Stelle fast 3mal so breit wie die Augen lang. Ruessel-spitze eingelenkt. Schaft den Augenvorderrand nicht ganz erreichend. Geissel gedrunken, die beiden ersten Glieder gestreckt, das 1. Glied etwas laenger als das 2. Glied; das 3. und 4. Glied noch so lang wie breit, die folgenden breiter als lang. Keule kraeftig, etwa doppelt so lang wie breit. Halsschild breiter als lang, seitlich nur schwach und gleichmaessig gerundet. Die Scheibe mit feiner Mittelfurche. Schildchen dreieckig. Fluegeldecken etwa $1\frac{3}{4}$ mal so lang wie breit, schwach elliptisch, die Spitze wenig vorgezogen. Schultern flach verrundet. Punktstreifen

ziemlich kraeftig, die Punkte rund und durch schmale Zwischenstege getrennt; Zwischenraeume breiter als die Streifen, schwach gewoelbt. Schenkel schwach gekeult. Vordertibien an der Spitze innen in einen Dorn ausgezogen. Tarsen gedrunge, 3. Tarsenglied gelappt.

Faerbung schwarz; Fuehlergeissel und Tarsen pechbraun. Das ganze Tier dicht mit runden, greisen Schuppen bekleidet, mit Ausnahme der Beine unbehaart.

Laenge 4,2-6 mm.

Chile: Antofogasta in ca. 1000 m Hoehe. Unter faulenden Kandelaberkakteen aufgefunden (28.3.1938).

Durch die gleichmaessig dichte, greise, etwas waechserne Beschuppung und die fehlende Behaarung ausgezeichnet und leicht kenntlich.

Subfamilie Hyloblinae

Tribus *Hylobiini*, Subtribus *Epistrophina*

8. *Pseudanthonus occulta* Champ.
Columbien: Ibagué (5.6.1938).

Tribus *Anthonini*

Den Kern der Tribus bilden Arten mit 8-gliedriger Fuehlergeissel, acht scharf getrennte, nicht zur Keule uebergewende Geisselglieder. Es ist die relativ artenreiche Gattung *Anthonus* Sch.; die eigenartige Gattung *Leprosomus* Guér., deren Arten durch ein auf dem Halsschild nach vorn gerichtetes Horn geziert sind; ferner die Gattungen *Cestophorus* Fst. und *Rhyparonotus* Fst., von denen die letztere getrennte Vorderhueten besitzt; alle Gattungen aus Central- und Suedamerika.

Eine 7-gliedrige Fuehlergeissel besitzen die amerikanischen Gattungen *Anephilus* Fst. und *Dioprophorus* Fst.

9. *Leprosomus vicarius* Fst.
Columbien: Ibagué (5.6.1938).

10. *Leprosomus contractus* Fst.
Columbien: Teguendama (26.6.1938).

11. *Rhyparonotus libertinus* Kirsch
Columbien: Teguendama (26.6.1938).

12. *Anthonus tippmanni*, n. sp.

Kopf flach halbkugelfoermig, fein chagriniert; die Augen treten, von vorn gesehen, nicht ueber die Scheitelhoehe des Ruessels hinaus. Ruessel etwa von Halsschildlaenge, im einen Geschlecht (♂?) kraeftig, im andern etwas flacher gebogen. Im apikalen Drittel bzw. Viertel etwas spatelartig verbreitert, hinter dieser Verbreiterung fast zylindrisch, zur Basis kaum merklich verdickt und hier nicht unterschnuert. Fuehlerschaft erreicht die Ruesselbasis. Das 1. Geisselglied laenger als breit; 2. Glied gestreckt, 2,5 mal so lang wie das 1. Glied; die restlichen Glieder gedrunken, breiter als lang. Keule maessig kraeftig, eifoermig. Halsschild etwa so lang wie breit, etwas vor der Mitte am breitesten, hier kraeftig gerundet, zur Basis ziemlich kraeftig geradlinig verschmaelert, der Vorderrand etwas schmaeler als die Basis, leicht zylindrisch abgesetzt. Punktierung stark und sehr dicht, die Zwischenraeume zu flachen Tuberkeln umgebildet. Eine punktfreie schmale Mittelflaeche ist wenigstens auf der vorderen Haelfte vorhanden. Elytren reichlich 1,5 mal so lang wie breit, fast elliptisch gebildet mit leicht vorgezogener Spitzenpartie. Basis der Decken leicht gerandet. Der 2. und 4. Zwischenraum ist an der Basis etwas mehr erhaben als die benachbarten und staerker tuberkuliert. Waehrend der 1. Zwischenraum nur wenige schwachere Tuberkeln besitzt, befinden sich auf dem 2., 3. und 4. Zwischenraum zahlreichere, kraeftige, waehrend der 5. und 6. Zwischenraum wiederum nur einzelne schwachere aufzeigt. In der Aufsicht treten aus dem Deckenumriss einige kraeftige Hoecker in der Naehة der Basis heraus. Punkte der Streifen kraeftig und dicht. Beine schlank, Schenkel ungezaehnt. Tibien wenig gebogen. Tarsen relativ gedrunken, das 1. Glied wenig laenger als breit.

Faerbung schwarz. Die Tuberkel auf Halsschild und Elytren mit kurzen, abstehenden Haerchen besetzt.

Laenge 6,5-7 mm.

Columbien: Medellin (17.6.1938).

Subfamilie Cryptorrhynchinae

Tribus *Conotrachelini*

13. *Conotrachelus cristatus* Fhrs.

Columbien: Armenia (4.6.1938).

Tribus *Ithyporini*, Subtribus *Acamptina*

Genus *Acamptus* Lec.

Von Leconte (Proc. Am. Phil. Soc. XV, 1876, p. 238) als Cryptorrhynchine angesehen und einer besonderen Tribus *Acampti* zugewiesen, glaubte Champion (Biol. Centr. Amer. Col. IV, 7, 1909/10, p. 1) naechere verwandtschaftliche Beziehungen zu den Cossoninen und Trypetinen feststellen zu koennen. Die Tribus *Acamptini* wird daher in genanntem Werk an die Spitze der *Cossoninae* gestellt.

Blatchley & Leng (Rhynchoph. N. E. Am. 1916, p. 519) fuehren die Tribus *Acamptini* ebenfalls unter den *Cossoninae* auf, die nahe verwandte Gattung *Paracamptus* jedoch unter den *Cryptorrhynchinae* bei *Lembodes* Sch.

Hustache vereinigt alle hierhergehoerigen Gattungen zur Tribus *Acamptini* unter den Cryptorrhynchinen.

Der kurze, starke Ruessel, aehnlich gebildet wie in der Gattung *Tyloderma*, der ithyporoide Ruesseleindruck des Prosternums, die schmal getrennten Vorderhueften, das kurze 3. und 4. Abdominalsegment, der halbrunde Vorderteil des Halsschildes, der ueber den Kopf vorgezogen ist, mit starken, die Augen verdeckenden Augenlappen neben einigen anderen Merkmalen sind Kennzeichen, die den hierhergehoerigen Arten gemeinsam sind.

Aber auch die folgende Gattung hat nahe verwandtschaftliche Beziehungen zu den *Acamptina*, hier ist aber das Mesosternum beeindruckt, sodass diese auf Grund des genannten Merkmals weit getrennt eingeordnet werden muesste. Ein eingehendes Studium aller hierhergehoerigen Gattungen muesste ergeben, ob diese und einige andere Gattungen nicht ebenfalls hierhergestellt werden sollten, weil der Ruesseleindruck von sekundaerer Bedeutung sein duerfte.

14. *Acamptus verrucosus*, n. sp.

Kopf halbkugelfoermig, flach gewoelbt; Augen aus der Kopfwoelbung nicht vorragend, seitenstaendig. Ruessel vom Kopf nur schwach abgesetzt, fast mit ihm in einer Ebene befindlich; beim ♀ kraeftig, plump, nur 2mal so lang wie breit, beim ♂ etwa 3mal so lang wie breit, beim ♀ nur sehr schwach, beim ♂ etwas mehr gebogen, dorsal ohne sichtbare Kiel- oder Furchenbildung. Fuehlerfurche schraeg nach unten zu den Augen gerichtet. Fuehler beim ♂ im apikalen Drittel, beim ♀ in der Ruesselmitte eingelenkt. Schaftspitze die Augen nicht ganz erreichend. 1. Geisselglied 1,5 mal so lang wie breit; 2. Glied

schwacher, $\frac{2}{3}$ mal so lang wie das 1. Glied; die restlichen Glieder quer. Keule kaum laenger als breit, kraeftig; das 1. Glied die groesste Haelfte der Keule in Anspruch nehmend, die apikale Partie dicht greis tomentiert. Prothorax so lang wie breit; vor der Mitte durch eine seichte Querfurche unterteilt: der vordere Teil hier in der Breite abgesetzt und im Halskreis gerundet, den Kopf verdeckend; der hintere Teil doppelt so breit wie lang, seitlich schwach und gleichmaessig gerundet, fast parallelseitig. Basis nur sehr schwach geschweift, fast gerade. Der vordere halbkreisfoermige Teil mit feiner Mittelfurche, die vorn auslaeuft, der Vorderrand hier leicht gekerbt erscheinend. Punktierung ziemlich kraeftig und sehr dicht. Schildchen klein. Elytren nicht ganz doppelt so lang wie breit, bis hinter die Mitte parallelseitig, in der Mitte seitlich leicht eingezogen; Spitzenpartie kraeftiger schnabelartig abgesetzt. Schultern kraeftig ausgebildet; zwischen der Naht und dem 5. Punktstreif ist die Deckenbasis halbrund zum Halsschild vorgezogen. Punktstreifen kraeftig; der letzte seitliche Punktstreif vereinigt sich mit dem vorletzten in der Hoehe der Hinterhueften; Zwischenraeume nur schmal. Unterseite ziemlich kraeftig und sehr dicht punktiert. Mesosternum nicht beeindruckt; 2. Abdominalsegment laenger als das 1. Segment hinter den Hueften und viel laenger als das 3. und 4. Glied zusammen. Schenkel schwach gekeult, ungezaehnt; Tibien gedrunen, relativ breit, gerade, an der Basis aussen nicht gewinkelt, an der Spitze aussen mit grossem Endhaken, innen mit Korbhoecker. Tarsenglieder gedrunen, jedes wenig laenger als breit, das 3. *Glied nicht gelappt*. Klauen frei, das Klauenglied nicht ganz so lang wie die drei vorhergehenden Glieder zusammen.

Faerbung pechbraun. Schuppenkleid dunkel ockerfarben, zu laenglichen, ziemlich regelmaessigen Schwielenpolstern auf den Decken zusammengefasst. Auf Kopf, Ruessel, Prothorax und Elytren mit gleichlangen, abstehenden, maessig langen Borsten besetzt.

Laenge 3,5-4 mm.

Columbien: Medellin (14.6.1938).

Anchaëampus, nov. gen.

Augen aus der Kopfwoelbung nicht vorragend und von den Augenlappen des Prothorax in der Ruhelage vollkommen verdeckt. Ruessel stark, walzenfoermig, schwach gebogen, kaum doppelt so lang wie breit. Fuehler im apikalen Drittel des Ruessels

eingelenkt. Fuehlerfurche schraeg nach abwaerts gefuehrt. Schaft den Augenvorderrand nicht ganz erreichend. 1. Geisselglied wenig laenger als breit; 2. Glied kaum laenger, aber duenner; die folgenden Glieder breiter als lang, nur das 6. und 7. Glied so lang wie breit. Keule kurz und maessig stark, wenig laenger als breit; das 1. Glied glaenzend, etwas laenger als die folgenden zusammen. Prothorax so lang wie breit, der Laenge nach breit gefurcht, die Furche vorn auslaufend, der Vorderrand des Prothorax hier tief ausgekerbt; der vordere Teil ueber den Kopf vorgezogen und von der Scheibe tief und scharf abgesetzt. Die Scheibe etwa doppelt so breit wie lang, seitlich nur schwach gerundet, vorn wenig breiter als an der Basis; seitlich der Mitte mit flachem Laengseindruck, sodass am Absturz zum Vorderrand 4 flache Erhebungen sich ausbilden. Basis tief doppelbuchtig. Schildchen etwas laenger als breit. Elytren ziemlich parallelseitig, etwa 1,75 mal so lang wie breit, die Spitzenpartie scharf schnabelartig abgesetzt. Punktstreifen wenig kraeftig, der 3., 5. und 7. Zwischenraum mit Hoeckern und Warzen auf der ganzen Laenge besetzt. Der vorletzte Zwischenraum vereinigt sich mit dem letzten in der Hoehe der Mittelhueften. Ruessel auf das Mesosternum einlegbar, der Eindruck hinten durch eine Querbruecke abgegrenzt, welche die Mittelhueften miteinander verbindet. Diese Bildung ist aehnlich wie in der Gattung *Rhyephenus*, doch fehlt die seitliche Begrenzung, die bei *Rhyephenus* nach vorn vorgezogen, dem Ruessel sozusagen entgegengewachsen ist. Das 3. und 4. Abdominalsegment ist sehr kurz, beide zusammen viel kuerzer als das 2. Segment. Die Beinbildung ist ganz aehnlich wie in der Gattung *Acamptus*, vor allem ist das 3. Tarsenglied nicht gelappt und von gleicher Breite wie die vorhergehenden Glieder, doch sind die Schenkel stumpf gezaehnt.

Man kann die hierhergehoerige Art als eine Fortentwicklung der Gattung *Acamptus* hinsichtlich der Beeindruckung des Mesosternums und der schwach gezaehnten Schenkel ansehen, waehrend die Hauptmerkmale der Gattung erhalten geblieben sind.

Genotypus: *Anchacamptus mandli*, n. sp. (Colombien).

15. *Anchacamptus mandli*, n. sp. (Abb. 1)

Der Gattungsbeschreibung sind folgende Angaben zur naeheren Erkennung der Art nachzutragen:

Ruessel an der Basis mit einer laenglichen Mittelgrube. Im einen Geschlecht (♀ ?) ist der Ruessel etwas gestreckter und

gerade, nur an der Spitze leicht abwaerts gebogen. Fuehler im apikalen Drittel des Ruessels eingelenkt. Der Vordersaum des Prothorax ist beiderseits der Einkerbung etwas gewulstet und hier mit abstehenden Borsten besetzt. Die Zahl der runden Hoeckererhebungen auf den abwechselnden Zwischenraeumen betraegt 5 bis 8. Von diesen sind die subbasalen und subapikalen die kraeftigsten, die zwischen ihnen angeordneten sind wenig kleiner. Auffaellig ist bei dieser Art das starke Klauenglied, das nur wenig duenner als die vorhergehenden Glieder und wie diese beschuppt ist.

Faerbung pechbraun. Das Tier ist dicht beschuppt. Die Faerbung des Schuppenkleides ist dunkel zimtbraun; dunkler braun ist die Scheibe des Prothorax mit Ausnahme der Mittelfurche und eine quer-rhombische Partie der Elytren, die sich hauptsaechlich auf die Warzen erstreckt. Ruessel, Kopf, Halsschild und die Warzen der Elytren mit kurzen, abstehenden Borsten besetzt.

Laenge 5,8-8,8 mm.

Columbien: Armenia (4.6.1938).

Tribus *Cryptorrhynchini*

16. *Rhyephenes humeralis* Guér.

Von dieser Art liegen 7 Exemplare vor, die in der Groesse sehr variieren: von 6,3 bis 16,5 mm Laenge. Bei den kleineren Stuecken ist der Prothorax so breit wie die Elytren, bei den groesseren erheblich breiter als diese. Bei den kleineren Stuecken treten ausserdem die eingesprengten graisen Schueppchen mehr hervor. Auf Grund dieser Abweichungen koennte man auf das Vorliegen zweier verschiedener Arten schliessen, doch sind die Uebergaenge so allmaehlich, dass sich eine Grenze nicht erkennen laesst. Wir haben es also mit einer innerhalb der angedeuteten Merkmale recht veraenderlichen Art zu tun.

Chile: Viña del Mar (17.3.1938); La Condes (6.3.1938).

17. *Eubulus coecus* F.

Columbien: Cucuta (30.6.1938).

18. *Eubulus costicollis*, n. sp.

Kopf ziemlich kraeftig und sehr dicht punktiert, auf dem Scheitel mit gewinkeltem Kiel hinter den Augen. Letztere um $\frac{2}{3}$ der Ruesselbreite von einander entfernt, schwach ueber die

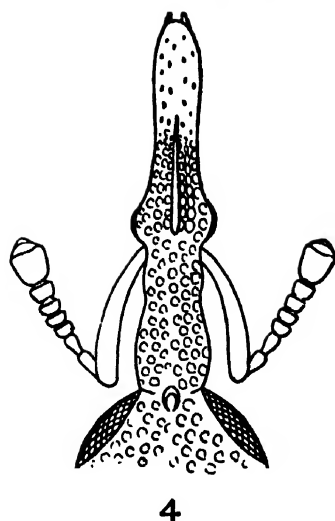
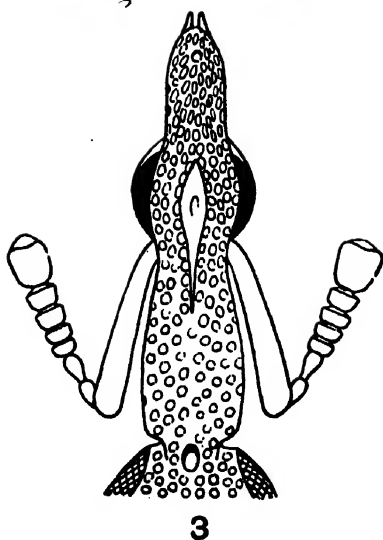
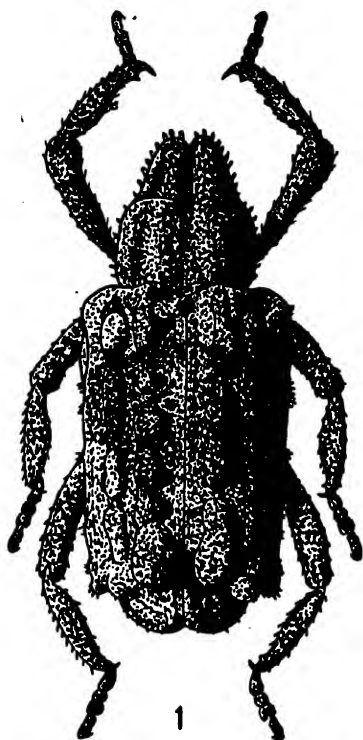


Fig. 1. *Anchacamptus mandli* n. g. n. sp. — Fig. 2. *Paralatychus conotracheloides* n. g. n. sp. — Fig. 3. *Mesocordylus glaber* n. sp. ♀, Ruesselbildung. — Fig. 4. *Idem*, ♂, Ruesselbildung.

Kopfoberseite aufgewölbt. Ruessel so lang wie Kopf und Prothorax zusammen, gebogen, von der Stirn kaum abgesetzt; mit feinem Mittelkiel, der zur Stirn aufläuft und erst kurz vor der Ruesselspitze erlischt, zwischen Ruesselfurche und dem Mittelkiel auf der basalen Hälfte mit einem weiteren feinen Kiel. Punktierung ziemlich kraeftig, sehr dicht, vorn kaum feiner. Fuehler in der Ruesselmitte eingelenkt. Fuehlerschaft den Augenvorderrand nicht erreichend. Das 1. Geisselglied kraeftiger als die nächstfolgenden Glieder, etwas laenger als breit; 2.-5. Glied annaehernd gleichlang, jedes laenger als das 1. Glied; 6. und 7. Glied ebenfalls laenger als breit. Keule kurz spindelfoermig, doppelt so lang wie dick. Prothorax breiter als lang, kurz vor der Basis am breitesten, zur Basis nur wenig verschmaelert, nach vorn in gleichmaessiger Rundung konisch verschmaelert und zum Vorderrand leicht konkav ausgezogen. Augenlappen maessig stark, kurz bewimpert; Basis des Prothorax tief doppelbuchtig. Scheibe mit scharfem Mittelkiel, der an der Basis leicht zahnartig vorsteht. Beiderseits mit 3 weiteren Laengskielen, von denen die beiden aeusseren vorn mehr oder weniger verkuerzt sind und auch die Basis nicht erreichen. Punktierung maessig stark, sehr dicht, netzartig. Schildchen etwas laenger als breit. Elytren reichlich 1,5 mal so lang wie breit, unweit der Basis am breitesten, zu dieser leicht gerundet verschmaelert, nach hinten zu ebenfalls schwach gerundet verengt, die Spitze nur in kleinem Radius gemeinsam verrundet. Der 3., 5., 7. und 9. Zwischenraum auf der ganzen Laenge gekielt, nur der Kiel auf dem 5. Zwischenraum im basalen Viertel kurz unterbrochen. Punktstreifen kraeftig, nach hinten viel feiner werdend. Das Analsegment an der Spitze mit flachem Gruebchen. Alle Schenkel mit 2 Zaehnen. Die Vorder- und Mitteltibien gleichmaessig schwach gebogen, die hinteren im basalen Teil etwas mehr.

Faerbung pechbraun. Unterseite und Seiten des Prothorax mit grossen lehmgelben Schuppen bekleidet. Die Seiten der Elytren mit kleineren, meist mehr gebraeunten Schuppen, die Oberseite der Elytren mit sehr kleinen greisen Schuppen bekleidet, die sich im apikalen Viertel zu einer unscharfen Querbinde verdichten. Sparsam eingestreut sind einige grosse Schuppen. Auf dem Prothorax sind einige Parteen, so die Vertiefungen zwischen den Laengskielen mit groesseren, gebraeunten Schuppen bekleidet, waehrend auf dem Kopf die kleineren weissen Schueppchen vorwiegen. Prothorax und Elytren neben den Laengskielen mit aufstehenden schwarzen

Schuppenborsten besetzt. Die Beine sind etwas gesprenkelt weiss und braeunlich beschuppt.

Laenge 6,5-8 mm.

Columbien: Cucuta (5.7.1938).

Etwas gestreckter als *E. coecus* F., mit mehr gerundetem Prothorax, etwas entfernter stehenden Augen, mehr gewinkeltem Scheitelkiel. Auffaellig durch die 7 Laengskiele des Prothorax. In dieser Hinsicht wohl dem *E. marginatus* Chp. nahekommend, der ebenfalls eine aehnliche Bildung aufweist, bei dem aber der Prothorax fein chagriniert sein soll, der aber auch durch die Beborstung der Oberseite u. a. abweicht.

19. *Cylindrocorynes dentipes* Boh.

Columbien: Cucuta (3.7.1938).

20. *Macromerus* (*Neomacromerus* nov. subg.) *inermipes*, n. sp.

Kopf halbkugelfoermig, maessig stark und sehr dicht punktiert; mit aus der Kopfwoelbung nicht vorragenden Augen, die um etwas weniger als die halbe basale Ruesselbreite von einander entfernt stehen. Ruessel beim ♂¹ so lang wie der Prothorax, beim ♀ etwas kuerzer, schwach gebogen, vom Kopf durch eine flach-konkave Rundung abgesetzt; beim ♂ auf der ganzen Laenge rauh und runzlig punktiert, besonders an den Seiten mit feinen Kerbhoeckerchen, die den Ruessel saegeartig erscheinen lassen; auf Basis und Stirn mit kurzem Mittelkiel; beim ♀ nur an der Basis sehr dicht punktiert. Fuehler beim ♀ wenig vor, beim ♂ in der Ruesselmitte eingelenkt. Der Schaft erreicht nicht die Augen; er ist schlank, an der Spitze schwach gekeult. 1. und 2. Geisselglied langgestreckt, das 2. Glied laenger als das 1. Glied; 3. Glied 1/2 so lang wie das 2. Glied; 4. Glied etwas kuerzer als das 3. Glied; 5.-7. Glied so lang wie breit. Keule gestreckt, fast so lang wie das 1.-3. Glied zusammen, das 1. Glied am laengsten. Prothorax so lang wie breit, im basalen Fuenftel parallelseitig, dann nach vorn in gleichmaessiger Rundung verschmaelert, der Vorderrand in konkaver Rundung ausgezogen. Augenlappen maessig kraeftig, Mitte der Basis zum Schildchen

¹) Es ist auffaellig, dass die charakteristischen Abweichungen der Gattung, wie der laengere Ruessel, die laengeren Beine mit den lang behaarten Vordertarsen dem ♂ zukommen. Die kleinsten der mir vorliegenden Stuecke waeren demnach ♀♀. Es steht dies im Gegensatz zu sonstigen Erfahrungen in anderen Gruppen und bedarf sicher noch der Nachpruefung. So wuerde man auch die saegezaehnartige Ausbildung des Ruessels eher dem ♀ als dem ♂ zuschreiben, in der Annahme, dass dies vielleicht bei der Eiablage von Bedeutung sein koennte.

leicht vorgezogen. Scheibe mit feinem Mittelkiel. Punktierung kraeftig, sehr dicht. Schildchen kreisrund. Elytren etwa $1\frac{2}{3}$ mal so lang wie breit, wenig vor der Basis am breitesten, von hier zur Spitze flach gerundet verschmaelert, an der Spitze nur mit kleinem Radius verrundet, zur Basis leicht gerundet verschmaelert und hier ziemlich scharfwinklig; Schulterbeule nur undeutlich ausgebildet. Punktstreifen kraeftig, die Punkte durch schmale Querstege getrennt; Zwischenraeume schmaeler als die Streifen, leicht gewoelbt, der 3., 5. und 7. Zwischenraum mehr gewoelbt, fast kielartig bei unbeschuppten Exemplaren. Unterseite ebenfalls ziemlich kraeftig und sehr dicht punktiert. Schenkel lang linear ausgebildet, ungezaehnt, beim ♂ bisweilen an den Vorderschenkeln undeutlich durch einen kleinen Tuberkel angedeutet; Vordertibien des ♂ in der Spitzenhaelfte leicht geschweift einwaerts gebogen, beim ♀ nur schwach und mehr gleichmaessig gebogen; beim ♂ ausserdem stark verlaengert. Das 1. Tarsenglied beim ♂ reichlich $\frac{1}{3}$ so lang wie die Tibien; 2. Glied $\frac{2}{3}$ so lang wie das 1. Glied, parallelseitig, abgeflaecht; das 1. und 2. Glied lang zottig rotblond behaart.

Faerbung pechbraun. Beschuppung greis, sehr dicht an den Seiten des Prothorax angeordnet, auch auf der apikalen Haelfte und zwar hier von den Schultern ablaufend in paralleloeroemiger Begrenzung sich von der braeunlich-schmutziggreisen der Vorderpartie abhebend. Auch die seitliche basale Partie der Decken dichter beschuppt und ebenso die Unterseite. Zwischenraeume der Decken mit wenig sich abhebenden kurzen niederliegenden Haerchen besetzt.

Laenge 6-11 mm.

Ecuador: S. Edoardo (22.5.1938).

Die *Macromerus*-Arten haben, soweit sie von Fiedler (D. Ent. Zeitschr. 1932, p. 36) dargestellt wurden, saemtlich gezaehnte Schenkel. Fuer die neubeschriebene, ungezaehnte Art schlage ich die Bildung eines neuen Subgen. *Neomacromerus* vor.

21. *Tyrannion fiedleri*, n. sp.

Augen aus der Kopfwoelbung nicht vorragend, um $\frac{1}{3}$ der basalen Ruesselbreite von einander entfernt. Scheitel mit verkuerztem Mittelkiel und 2 Schraegkielen hinter den Augen. Ruessel wenig laenger als der Prothorax, gleichmaessig kraeftig gebogen, von der Basis zur Spitze seitlich leicht verjuengt; im basalen Drittel mit scharfem Mittelkiel, seitlich desselben kraeftiger runzlig punktiert, die Runzeln z. T. zu Laengskielen umgebildet,

vorn fein und wenig dicht punktiert. Fuehler in der Ruesselmitte eingelenkt. Schaft schlank, leicht gekeult, die Augen nicht ganz erreichend. 1. und 2. Glied der Geissel gleichlang, laenger als breit; 3. Glied wenig laenger als das 2. Glied; 4. Glied ebenfalls laenger als breit, etwa $\frac{2}{3}$ mal so lang wie das 3. Glied; 5. Glied kaum laenger als breit, 6. und 7. Glied kugelfoermig. Keule wenig kraeftig, 1,5 mal so lang wie dick, kegelfoermig zugespitzt. Prothorax doppelt so breit wie lang, im basalen Drittel kraeftig gerundet, zum Vorderrand kraeftig konisch verschmaelert, der Vorderrand des Prothorax ist ein Drittel so breit wie der Prothorax an der breitesten Stelle; auf der vorderen Haelft mit starkem Mittelkiel, der vorn kraeftiger emporgehoben ist. Punktierung kraeftig und sehr dicht. Augenlappen nur maessig stark ausgebildet, die Mitte der Prothoraxbasis ziemlich scharf zum Schildchen vorgezogen. Schildchen laenger als breit. Elytren etwa $\frac{1}{5}$ mal so lang wie breit, im basalen Drittel parallelseitig, von hier leicht gerundet zur Spitze verschmaelert, hier breit ver-rundet. Punktstreifen aus groeberen grubenartigen Punkten gebildet, die durch Zwischenstege von der Haelfte ihres Durchmessers getrennt werden. Zwischenraeume schmal, kaum gewoelbt; der 9. Zwischenraum als scharfer Kiel ausgebildet, der die Basis der Decken nicht erreicht; ausserhalb desselben sind die Decken unbeschuppt. Der aeusserste Punktstreif nur an der Basis mit wenigen Punkten kraeftig ausgebildet, dann nur sehr fein weitergefuehrt. Schenkel mit langem, an der Spitze etwas abgerundetem Zahn, die vorderen ausserdem zur Spitze hin mit scharfer Schwiele, ueber die beiderseits aufstehende Schuppen hinausragen, und die daher einem breit abgestutzten Zahn gleicht. Tibien breit, innen ziemlich gerade, leicht doppelbuchtig, aussen in der basalen Haelfte kraeftiger gebogen. Das 1. Tarsenglied doppelt so lang wie breit, kraeftig gekeult; 2. Glied so lang wie breit; 3. Glied breit gelappt.

Faerbung pechbraun. Beschuppung auf Prothorax und Elytren seitlich heller braeunlich, zum Teil mit weissen Schuppen untermischt, dorsal dunkler braun, schuetterer. Auf dem Prothorax sind die Schuppen etwas laenger gebildet, auch durchweg dichter angeordnet, seitlich des gekielten 9. Zwischenraums auf den Decken sind letztere unbeschuppt. Unterseits sind die Schuppen nur spaerlich angeordnet. Eine Zwischenbehaarung fehlt.

Laenge 7,5-8 mm.

Peru: Tingo Maria (15.5.1938).

Die Bestimmung der Art nach Fiedler (Zool. Anz. 134, 1941, p. 224) fuehrt in die Naehة von *T. pallidus* Fiedl., eine ebenfalls peruanische Art. Auch bei dieser Art ist der 9. Zwischenraum, allerdings auf der ganzen Laenge, fein gerippt, doch weichen beide Arten in verschiedener Hinsicht erheblich von einander ab. Unserer Art fehlt der runde, schwarz beschuppte Fleck auf den Elytren, der Ruessel scheint kuerzer und kraeftiger ausgebildet zu sein, der 3. Zwischenraum der Decken weist hinter der Basis kein Borstenbueschel auf. Vor allem sind die Vordertibien abweichend gezaehnt. Allem Anschein nach ist auch die Kielbildung auf Kopf und Prothorax eine abweichende, wenigstens deutet die Beschreibung von *pallidus* auf das Fehlen dieser Auszeichnung hin. Ich bin nicht sicher, ob beide Geschlechter vorliegen, jedenfalls besitzt das 5. Abdominalsegment bei allen 3 Exemplaren keine Auszeichnung wie das ♀ von *pallidus*.

Ich widme diese Art freundlichst Herrn Sanitaetsrat Dr. C. Fiedler, dem Bearbeiter der suedamerikanischen Arten der Gattung *Tyrannion*.

22. *Elytrocoptus prolifer* Pasc.

Peru: Tingo Maria (15.5.1938).

Subfamilie Zygopinae

Genus *Paralatychus*, nov. gen.

Augen rund, um etwa die halbe basale Ruesselbreite getrennt, von der Ruesselbasis um ihren halben Laengsdurchmesser entfernt befindlich. Ruessel kaum so lang wie der Prothorax, gebogen. Fuehler im basalen Drittel desselben eingelenkt. Schaft kurz, wenig laenger als der Ruessel an der Basis breit. Das 2. und 3. Geisselglied gestreckt, das 2. Glied am laengsten, die uebrigen Glieder gedrunge. Keule kurz und ziemlich kraeftig. Prothorax konisch, seitlich wenig gerundet; ohne Augenlappen; die Basis nur seicht doppelbuchtig. Schildchen viereckig. Elytren dreieckig, die Schultern meist scharf zugespitzt; die Zwischenraeume einfach oder mit Hoeckern besetzt. Das 2. Abdominalsegment etwas laenger als das 2. und 3. Glied zusammen. Vorderbrust mit tiefer Ruesselfurche, die Vorderhueften getrennt; Mesosternum beeindruckt, vorn und hinten offen, seitlich mit aufstehendem Hoecker, der den Ruessel seitlich begrenzt; Mittelhueften breit getrennt; Pygidium im Spitzenteil von den Elytren unbedeckt, mit Mittelkiel. Schenkel mit dreieckigem Zahn; Tibien kurz, nur 2/3 so lang wie die Schenkel; 3. Tarsenglied gelappt; Klauen frei. Beschuppung aehnlich wie in der Gattung *Piazurus*. Mitteltgrosse Arten.

Genotypus: *P. conotracheloides*, n. sp. (Columbien, Brasilien).

Waehrend in den Tribus *Cratosomini* und *Piazurini* das Mesosternum cryptorrhynchoid ausgebildet ist, der Ruessel also in eine hinten abgekapselte Rinne einlegbar ist, ist in dieser Gattung das Mesosternum

sattelartig ausgebildet, unbeschuppt, geglaettet. Diese Bildung steht aber nicht nur im Gegensatz zu den genannten Tribus, sondern auch zur Tribus *Zygopini*. Einzig in der Gattung *Peltophorus* sind auf dem Mesosternum ebenfalls seitliche Hoecker ausgebildet. Die Hittelhueften sind viel breiter getrennt als bei den Arten von *Cratosomus* und *Piazurus*.

Von *Latychus* unterscheidet sich die neue Gattung schon durch die gezaehnten Schenkel. Sie scheint aber eine aehnliche Mesosternumbildung zu besitzen, im Gegensatz zu *Costalatychus* Hell., die wohl eine echte *Piazurine* sein duerfte.

Mir sind mehrere hierhergehoerige Arten bekannt geworden; die charakteristische duerfte die hier zu beschreibende sein. Sie aehnelt sehr einer *Conotrachelus*-Art, etwa aus der Verwandtschaft des *corallifer* Boh., koennte auch fuer eine kleine *Trasyomus*-Art, etwa aus der Verwandtschaft des *conotracheloides* Chp. gehalten werden, doch sind die Epimeren der Mittelbrust hoch aufsteigend.

Die neue Gattung wird als eine besondere Tribus zwischen *Piazurini* und *Zygopini* eingeschaltet werden muessen. Sie bildet hier eine wertvolle Bereicherung der Kenntnis der verwandtschaftlichen Beziehungen dieser Gruppen, und ist nicht zuletzt auffaellig durch die breiter getrennten Augen, steht also in dieser Hinsicht etwas isoliert da, weil die eng beieinander stehenden Augen fuer die ganze Unterfamilie sonst charakteristisch sind.

23. *Paralatychus conotracheloides*, n. sp.

(Abb. 2)

Kopf ziemlich fein und sehr dicht punktiert. Augen sehr wenig aus der Kopfwoelbung vorragend. Ruessel auf der basalen Haelfte mit schwachem Mittelkiel, der zur Stirn auflaeuft; seitlich desselben ziemlich fein, sehr dicht, laengsrunzlich punktiert, vorn sehr fein und weitlaeufig punktiert. Fuehler-Schaft kraeftig gekeult. Prothorax quer, trapezfoermig mit fast geraden Seiten, fein und sehr dicht punktiert, die Mitte der Scheibe mit kraeftigem gerundeten Hoecker, ueber den ein feiner Mittelkiel laeuft; bei anderen Exemplaren mit schaeferem zahnartigen Hoecker, der an der Spitze gegabelt erscheint, weil hier 2 Borstenbueschel aufstehen, ausserdem bei diesem die Seiten etwas mehr gerundet und der Vorderrand leicht konkav ausgezogen. Schildchen gewoelbt, so lang wie breit, hinten halbrund. Elytren 1,5 mal so lang wie ueber den Schultern breit, letztere scharf gewinkelt, von der Seite gesehen flach ohrenfoermig vertieft; Punktstreifen kraeftig, hinten feiner; Zwischenraeume mit Hoeckern besetzt, die groessten derselben auf dem 3. Zwischenraum; ein laenglicher in der Naeh der Basis und zwei zusammengewachsene kurz vor der Mitte, ein kleinerer kegelfoermiger im apikalen Drittel, fuenf kleine bis maessig grosse Hoecker auf dem 5. Zwischenraum. Die Spitze der Elytren einzeln leicht mucroartig vorgezogen, sodass diese hier gekerbt erscheinen. Unterseite fein und dicht punktiert.

Hinterschenkel am kraeftigsten gezaehnt. Die kurzen Tibien leicht s-foermig geschweift, aussen vor der Spitze wimperartig behaart. Das 1. Tarsenglied etwas laenger als das 2. und 3. Glied zusammen, leicht gebogen, an der Spitze keulig verstaerkt.

Faerbung unten rotbraun, oben pechbraun. Oberseite mit sehr kleinen greisen Schueppchen maessig dicht bekleidet, die Unterseite gelblich und wenig dicht; etwas dichter auf den Epimeren der Mittelbrust sowie auf der unteren Prothoraxseite und in je einem submarginalem Fleck auf dem 2., 3. und 4. Abdominalsegment. Auf den Erhabenheiten des Kopfes und Prothorax stehen kurze Boerstchen auf.

Laenge 6,3-7,5 mm.

Columbien: Teguendama (26.6.1938).

Tribus *Zygopini*

24. *Zygops tridentata* Gyll.

Columbien: Cucuta (5.7.1938).

Subfamilie Rhynchophorinae

Tribus *Sipalini*

25. *Mesocordylus glaber*, n. sp. (Abb. 3-4)

Kopf halbkugelfoermig, maessig stark und dicht punktiert. Augen auf der Unterseite zusammenfliessend. Ruessel nicht ganz so lang wie der Prothorax, ziemlich kraeftig und gleichmaessig gebogen, von der Stirn nicht abgesetzt, wie der Kopf punktiert, an der Spitze aber sehr dicht; an der Basis seitlich scharf unterschritten, im apikalen Drittel seitlich ohrenartig verbreitert, die Ruesselspitzenpartie davor auf fast die Haelfte der basalen Breite verjuengt. An der Basis mit tiefer Grube. Mandibeln einfach spitz, kegelfoermig. Fuehler an der Wurzel der Ruesselverbreiterung eingelenkt. Schaft kurz und breit. 1. Geisselglied so lang wie breit; 2. Glied etwas laenger als breit, verkehrt kegelfoermig; 2.-6. Glied quer. Keule leicht abgeplattet, das Basalglied so lang wie breit, schwach trapezfoermig. Prothorax so lang wie breit, seitlich kraeftig und gleichmaessig gerundet, Vorderrand schmal abgeschnuert, wulstartig gerundet. Punktierung ziemlich kraeftig, dicht, Zwischenstege sehr fein chagriniert. Schildchen breiter als lang. Elytren 2,5 mal so lang wie breit, so breit wie der Prothorax, in der basalen Haelfte parallelseitig, zur Spitze

leicht gerundet verschmaelert, mit flach verrundeter Subapikalschwiele. Punktstreifen ziemlich kraeftig, furchenartig vertieft, die Punkte die Streifen leicht angreifend, nach hinten zu ein wenig schwaecher werdend; Zwischenraeume flach, im Mittel etwa doppelt so breit wie die Streifen, im allgemeinen etwas weitlaeufig einreihig punktiert. Die Oberflaeche der Decken im Gegensatz zum Prothorax durch aeusserst feine Punktulierung mattiert. Unterseite flach und dicht maessig stark punktiert. Schenkel schwach gekault. Tibien gerade, an der Spitze leicht einwaerts gebogen; Hintertibien schwach und gleichmaessig gebogen. Das 3. Tarsenglied nicht gelappt.

Faerbung pechbraun. Unbeschuppt und unbehaart, nur die Tibien innen und aussen mit kurzen, roetlichen Haerchen saumartig besetzt. Bei einigen Exemplaren sind die Punkte des Halsschildes und der Decken sowie der Beine membranartig ausgelegt.

Laenge 8-13 mm.

♂: Ruessel in der Mitte erweitert, weniger stark als beim ♀; hinter der Einschnuerung gerundet verschmaelert, in der apikalen Haelfte duenner ausgezogen. Halsschild vor der Mitte am breitesten.

Peru: Tingo Maria (15.5.1938).

Dem *M. subulatus* Germ., der auch in Peru nachgewiesen wurde, aehnlich, aber durch tiefere Punktstreifen und das Fehlen der charakteristischen Flecken ausgezeichnet.

Unter den zentralamerikanischen Arten kommt die vorliegende Art dem *dispersus* Chp. am naechsten, der von *Champion* als fraglich von Peru angefuehrt wird. Von diesem unterscheidet sich unsere Art aber durch die geraden Vordertibien, die tiefe basale Ruesselgrube und die fehlenden greisen Flecke auf der Oberseite des Tieres. Auch bei *M. imundus* Er. sollen die Zwischenraeume "griseo-leprosis" sein. Dem ebenfalls aus Peru nachgewiesenen *M. striatus* Boh. fehlt die basale Ruesselabschnuerung.

Tribus *Rhynchophorini*

26. *Rhynchophorus palmarum* L.

Brasilien: Minas Gerais, Sabará (25.11.1937).

27. *Rhynchophorus phoenicis* F.

Vom gleichen Fundort liegen neben einem Exemplar des *R. palmarum* L. 3 Stueck des afrikanischen *R. phoenicis* F. vor. Allem Anschein nach ist die Art hier eingeschleppt worden.

Der Umstand, dass *R. phoenicis* in Suedamerika aufgefunden wurde und sich moeglicherweise hier auch verbreitet, ist geeignet, die zoogeographischen Zusammenhaenge der *Rhynchophorus*-Arten zu verwischen.² An sich ist *R. phoenicis* naemlich dem *R. ferrugineus* aus der indomalayischen Region wesentlich naeher verwandt als dem *R. palmarum* L. Sowohl *phoenicis* wie *ferrugineus* haben u. a. die Basis des Prothorax nur flach gerundet, waehrend *palmarum* und verwandte Arten sowie alle *Dynamis*-Arten die stark gebogene, seitlich etwas geschweifte Prothoraxbasis gemeinsam haben. Die neotropischen Arten haben sich frueher abgespalten, als dies bei *ferrugineus* und *phoenicis* der Fall ist. Das deckt sich auch mit der zeitlichen Trennung der Kontinente nach ihrer Abspaltung, die eine selbstaendige Entwicklung des neotropischen Formenkreises ermoeeglichte.

Subfamilie Cossoninae

Tribus Cossonini

28. *Cossonus corticalis* F.

Peru: S. Pedro (5.5.1938).

29. *Cossonus spathula* Boh.

Ecuador: S. Edoardo (22.5.1938).

²) Umgekehrt wurde *Metamasius sericeus* L., eine neotropische Art, in den letzten Jahren in Westafrika aufgefunden. (Lepesme et Paulian, Bull. Soc. Ent. Fr. 1941, pp. 31-37, figs. 1-13. Voss, Arb. morph. tax. Ent. Berlin-Dahlem 9, 1942, p. 24).

Notes on the Tropical American Species of Tipulidae (Diptera).**II. The Primitive Eriopterini: Sigmatomera, Trentepohlia, Gnophomyia, Neognophomyia, Gonomyia, and Allies.**

By Charles P. Alexander,
University of Massachusetts, Department of Entomology, Amherst,
Massachusetts.

(With 31 figures)

In the present report I am discussing briefly the various Tropical American genera that are considered as falling within the limits of the more generalized Eriopterini, as delimited by the reduced mesothoracic meron. This important character contrasts with the apparently more specialized one of an enlarged meron, producing a so-called "pot-bellied" effect, as found in the higher Eriopterini. In this latter series of genera the meron has become detached from the middle coxa and is adherent to the ventral region of the mesepimeron, resulting in a wide separation of the middle and hind legs. In the genera here discussed the meron is much smaller and the middle and hind coxae are much more approximated. The very significant paper by C r a m p t o n (Insec. Inscit. Menst., 13: 197-213, pls. 2-3; 1925) is basic for any work on this tribe of the Tipulidae. In this study C r a m p t o n has described and figured the thoracic pleurites and sternites of one of the genera (*Neolimnophila*) considered in the present report, as well as that of *Teucholabis*, discussed in the preceding paper under this general title. It should be emphasized that *Teucholabis* is likewise a member of these more primitive Eriopterini. E d w a r d s (1938) has included *Rhabdomastix* Skuse in this section of the Eriopterini but to this procedure I cannot agree and the genus will be considered in Part III of this series of papers where the more specialized genera of the Eriopterini will be discussed.

The exact position in tribes of the genera here treated, together with *Teucholabis*, may be held in question and these may perhaps be transferred to the tribe Hexatomini, despite the loss of tibial spurs. In such a case, the tribal name would be restricted to the above-mentioned "pot-bellied" series to be discussed in the next paper. For the present, at least, I prefer to adhere to the adopted treatment, a course followed by E d w a r d s (1938) and by the writer in all recent taxonomic papers on the Tipulidae. On the basis of presence or absence of tibial spurs, I am treating *Lecteria* Osten Sacken as being

Hexatomine and this genus, with its subgenus *Psaronius* Enderlein, will be discussed later in this series of papers. The reasons for considering *Neolimnophila* in the primitive Eriopterini have been given later in the discussion of that genus.

The following genera and subgenera fall in this section.

Genera	Subgenera
<i>Neolimnophila</i> Alexander	
<i>Philippiana</i> Alexander	
<i>Sigmatomera</i> Osten Sacken:	<i>Austrolimnobia</i> Alexander
	<i>Eufurina</i> Alexander
	<i>Sigmatomera</i> Osten Sacken
<i>Trentepohlia</i> Bigot:	<i>Neomongoma</i> Alexander
	<i>Promongoma</i> Alexander
	<i>Mongoma</i> Westwood
	<i>Paramongoma</i> Brunetti
<i>Gnophomyia</i> Osten Sacken:	<i>Eugnophomyia</i> subgen. n.
	<i>Gnophomyia</i> Osten Sacken
<i>Quechuamyia</i> Alexander	
<i>Aymaramyia</i> Alexander	
<i>Gymnastes</i> Brunetti:	<i>Paragymnastes</i> Alexander
<i>Jivaromyia</i> Alexander	
<i>Neognophomyia</i> Alexander	
<i>Gonomyia</i> Meigen:	<i>Progonomyia</i> Alexander
	<i>Gonomyia</i> Alexander
	<i>Idiocera</i> Dale
	<i>Euptilostena</i> Alexander
	<i>Gonomyia</i> Meigen
	<i>Lipophleps</i> Bergroth
	<i>Paralipophleps</i> subgen. n.
	<i>Neolipophleps</i> subgen. n.
<i>Aphrophila</i> Edwards	
<i>Lipsothrix</i> Loew	
<i>Teucholabis</i> Osten Sacken (as	
considered in Part I)	

Neolimnophila Alexander

Limnophila (*Neolimnophila*) Alexander; Proc. California Acad. Sci. (4) 10: 37-38; 1920.

A small genus of essentially Holarctic crane-flies, with a single species in the Peruvian Andes. *Neolimnophila andicola* Alexander (Fig. 1): Peru (Ayacucho), 3,000-4,100 meters.

In *Neolimnophila* the fore tibiae are unspurred but the presence of large spurs on the middle and hind tibiae of the genotype and other species renders the position of this genus in tribes somewhat questionable. From the somewhat obvious relationship with *Cladura* Osten Sacken, *Crypteria* Bergroth and *Chionea* Dalman, all of which lack tibial spurs, the group (*Claduraria*) has been placed among the generalized Eriopterini. The

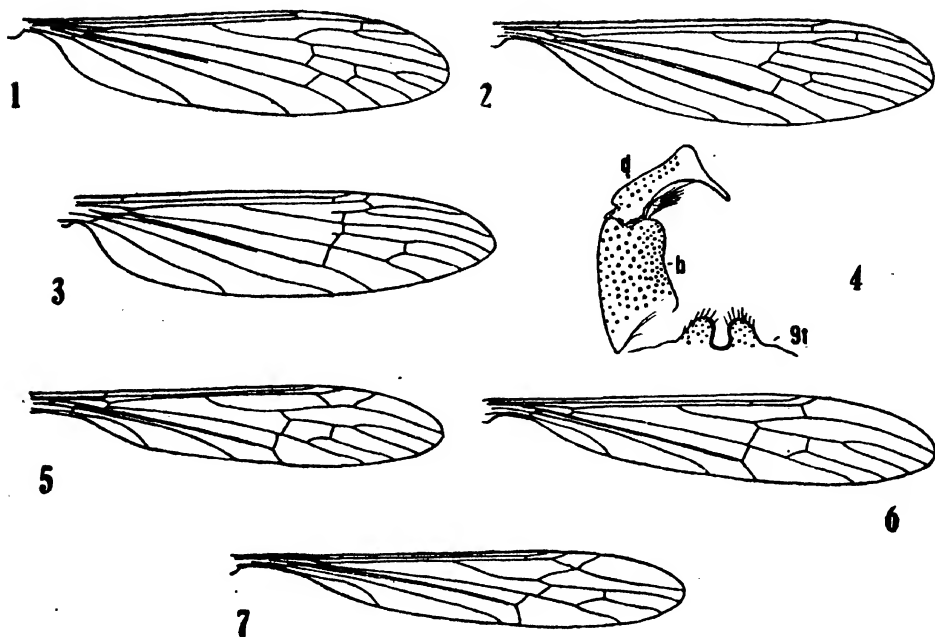


Fig. 1. *Neolimnophila andicola* Alexander; venation. — Fig. 2. *Philippiana egregia* Alexander; venation. — Fig. 3. *Sigmatomera (Sigmatomera) flavipennis* Osten Sacken; venation. — Fig. 4. *Sigmatomera (Sigmatomera) angustirostris*, sp. n.; male hypopygium. (Symbols: *b*, basistyle; *d*, dististyles; *t*, tergite). — Fig. 5. *Trentepohlia (Neomongoma) fuscoterminalis* Alexander; venation. — Fig. 6. *Trentepohlia (Promongoma) mirabilis* Alexander; venation. — Fig. 7. *Trentepohlia (Paramongoma) petulans* Alexander; venation.

case of *Lecteria* Osten Sacken, mentioned earlier, is somewhat comparable.

Soot-Ryen (1928) has proposed the genus *Crypteriella* for a fly from Arctic Siberia, basing the group on the false assumption that *Neolimnophila* had spurs on all tibiae. The species *Crypteriella sverdrupi* Soot-Ryen is based on a single female that appears to be a synonym of *Neolimnophila placida* (Meigen) (*hyalipennis* Zetterstedt).

Philippiana Alexander

Philippiana Alexander; Dipt. Patagonia and South Chile, 1: 175-177, figs. 97, 216-218; 1929.

A peculiar genus represented by a species in southern Patagonia and Chile, with one further doubtfully assigned form. *egregia* Alexander (genotype). — Chile, Patagonia.

? *pilosipes* Alexander. — Southern Chile.

The affinities of *Philippiana* appear to lie with the tribe Claduraria, especially *Cladura* Osten Sacken, *Chionea* Dalman,

and some other autumnal and winter crane-flies of the Holarctic Region. The wing of *egregia* is shown (Fig. 2). A full characterization, with figures, was provided at the time of defining the genus.

Sigmatomera Osten Sacken

Sigmatomera Osten Sacken; Mon. Dipt. N. America, 4: 137; 1869. Besides the typical subgenus, there are two further subgenera:

Austrolimnobia Alexander; Rec. South Australian Mus., 2: 239; 1922. Syn. *Astelobia* Edwards; Trans. New Zealand Inst., 54: 297-298; 1923 (described as *Gnophomyia*, subgenus *Astelobia*).

Eufurina Alexander; Journ. N. Y. Ent. Soc., 54: 307; 1946 (new name for *Furina* Jaennicke, 1867, nec *Furina* Dumeril, 1853).

The species of *Sigmatomera* and *Eufurina* are restricted to the American Tropics, ranging from Mexico to Paraguay and southern Brazil in the case of the former. *Austrolimnobia* is best known from Chile and southeastern Brazil but has one representative as far north as Mexico, and also with further species in Australia and New Zealand. For a discussion of the typical subgenus, including the biology, see Alexander, C. P., Encycl. Entomol., Diptera, 5: 155-162, 8 figs.; 1930; for a discussion of *Austrolimnobia* (as *Astelobia*), see Alexander, C. P., Dipt. Patagonia and South Chile, 1: 178-179, figs. 89, 219; 1929.

The wing of *flavipennis* is shown (Fig. 3).

List of Species.

Austrolimnobia

- bullocki* (Alexander). — South Chile.
- magnifica* (Alexander). — Mexico.
- maiae* (Alexander). — South Chile.
- plaumanniana* Alexander. — Southeastern Brazil.
- woytkowskiana* Alexander. — Peru.

Eufurina

- rufithorax* (Wiedemann). — Brazil.

Sigmatomera

- aequinotialis* Alexander. — Ecuador.
- amazonica* Westwood. — Amazonian Brazil.
- angustirostris*, sp. n. — Southeastern Brazil.
- apicalis* Alexander. — British Guiana.
- flavipennis* Osten Sacken (genotype). — Mexico.
- geijskeana* Alexander. — Surinam.
- occulta* Alexander. — Paraguay.
- pictipennis* Alexander. — Southeastern Brazil.
- seguyi* Alexander. — Costa Rica.
- shannoniana* Alexander. — Eastern Brazil.
- varicornis* Alexander. — Southeastern Brazil.

Sigmatomera (*Sigmatomera*) *angustirostris*, sp. n.

Very similar in its general appearance to *occulta* Alexander, differing especially in the details of structure of the male hypopygium. Ninth tergite (Fig. 4) with the rounded intermediate lobes small, separated by a deep rectangular notch; in *occulta*, the lobes larger, the notch much more extensive. Dististyle, *d*, with the beak long and slender, without a conspicuous lateral flange, as in *occulta*.

Habitat: Southeastern Brazil.

Holotype, ♂, Nova Teutonia, Santa Catharina, December 13, 1938 (Plaumann). Paratopotype, ♂, February 26, 1937 (Plaumann). Types in Alexander Collection.

Trentepohlia Bigot

Trentepohlia Bigot; Ann. Soc. Entomol. France, (3) 2: 456, 473; 1854.

Besides the typical subgenus, which is Palaeotropical, four additional subgenera occur in Tropical America:

Neomongoma Alexander; Journ. N. Y. Ent. Soc., 27: 140; 1919 (described as *Trentepohlia*, subgenus *Neomongoma*).

Promongoma Alexander; Ann. Mag. Nat. Hist., (11) 1: 353, fig. 8; 1938 (described as *Trentepohlia*, subgenus *Promongoma*).

Mongoma Westwood; Trans. Ent. Soc. London 1881: 364, pl. 17, fig. 1; (1881).

Paramongoma Brunetti; Rec. Indian Mus., 6: 295; 1911. Syn. *Mongomella* Enderlein; Zool. Jahrb., Syst., 32: 61; 1912.

The subgenera *Neomongoma* and *Promongoma* are restricted to Tropical America. The occurrence of a single species of *Mongoma* in Tropical America is especially noteworthy and difficult of explanation. In the Palaeotropics, the subgenus is vastly developed, occurring in the Ethiopian, Oriental and Australasian Regions, with various species on certain of the Pacific Islands, including Fiji and Samoa. In America, all species of *Paramongoma*, the dominant subgenus, are tropical, the most northerly species occurring in Puerto Rico, Jamaica and Mexico, the most southerly in northern Argentina. In the Old World, much fewer species occur in Africa and in the Oriental and Australasian Regions.

The immature stages of certain of the Old World species occur in decaying plant matter. Some of the American species (as *bromeliadicola*, *leucoxena*) live in the detritus gathered in the leaf axils of bromeliads, a habitat that may be far more common than has been determined to the present time (see Picado, C., Les broméliacées epiphytes, Bull. Soc. Zool. Paris, 37: 356-357, text-figs. 50, 51, pl. 13, figs. 1, 2, 4; 1912; T. (*P.*) *bromeliadicola*).

For a key to the seven subgenera of *Trentepohlia* so far

defined, see Alexander, C. P., Ann. Mag. Nat. Hist., (11) 1: 354; 1938. It should be noted that the complete atrophy of vein R_3 in *Promongoma* is similarly a character of the Palaeotropical subgenera *Anchimongoma* Brunetti and *Plesiomongoma* Brunetti.

The wing figures include *Trentepohlia* (*Neomongoma*) *fuscoterminalis* (Fig. 5), *T. (Promongoma)* *mirabilis* (Fig. 6) and *T. (Paramongoma)* *petulans* (Fig. 7).

List of Species.

Neomongoma

- disjuncta* (Alexander). — Southeastern Brazil.
- fuscoterminalis* Alexander. — Southeastern Brazil.
- mesonotalis* Alexander. — Southeastern Brazil.
- sordidipennis* Alexander. — Southeastern Brazil.
- suberecta* Alexander. — Ecuador.
- zernyi* Alexander. — Amazonian Brazil.

Promongoma

- mirabilis* Alexander. — Ecuador.

Mongoma

- errans* Alexander. — Ecuador.

Paramongoma

- amatrix* Alexander. — Southeastern Brazil.
- bromeliadicola* (Alexander). — Costa Rica.
- calliope* Alexander. — Peru.
- chiriquiana* Alexander. — Panama.
- concumbens* Alexander. — Southeastern Brazil.
- cubitalis* Alexander. — Southeastern Brazil.
- disparilis* Alexander. — Peru.
- ditzleri* Alexander. — Venezuela.
- dominicana*, sp. n. — Puerto Rico, Dominica.
- extensa* (Alexander). — Panama, British Guiana, Brazil.
- faustina* Alexander. — Southeastern Brazil.
- femorata* Alexander. — Amazonian Brazil.
- flavella* Alexander. — Amazonian Brazil.
- fuscipes* (Alexander). — Amazonian Brazil.
- geniculata* (Alexander). — British Guiana, Amazonian Brazil.
- laudabilis* Alexander. — Peru.
- leucoxena* (Alexander). — Mexico.
- longifusa* (Alexander). — Amazonian Brazil, Ecuador, Peru.
- manca* (Williston). — Lesser Antilles: St. Vincent.
- metatarsata* (Alexander). — Southeastern Brazil.
- niveitarsis* (Alexander). — Puerto Rico, Jamaica.
- pallida* (Williston). — Lesser Antilles; Brazil.
- pallipes* (Alexander). — British Guiana, Amazonian Brazil.
- petulans* Alexander. — Southeastern Brazil.
- roraimicola* Alexander. — Venezuela.
- sororcula* (Alexander). — Panama.
- subleucoxena* Alexander. — Mexico.
- tucumana* Alexander. — Argentina.

Trentepohlia (Paramongoma) dominicana, sp. n.

General coloration of mesonotum reddish yellow, the praescutum with a capillary brown vitta on cephalic half; rostrum yellow; halteres weakly infuscated; legs brownish black, the tarsi paling to light yellow; wings subhyaline, vaguely patterned with pale brown, including the tip and seams over the cord and along vein *Cu*; stigma dark brown, oval; vein *2nd A* strongly and evenly arched, the cell wide; abdominal tergites buffy yellow, the caudal borders of the segments narrowly ringed with pale brown.

Male. — Length, about 7-8 mm.; wing, 6-7 mm.; hind leg, femur, 11 mm.; tibia, 11.5 mm.; tarsus, 10.5 mm.

Rostrum obscure yellow; palpi brown. Antennae black; flagellar segments subcylindrical. Head brownish gray; anterior vertex very narrow, reduced to a linear strip that is only about as wide as a single row of ommatidia.

Pronotum and mesonotum almost uniformly reddish yellow, virtually unpatterned; praescutum with indications of a capillary brown vitta on cephalic half; scutal lobes very weakly darkened; central region of scutum and the scutellum more whitish pruinose; postnotum slightly infuscated. Pleura and pleurotergite chiefly pale yellow. Halteres weakly infuscated, especially the knobs. Legs with the coxae and trochanters yellow, the fore coxae a trifle more darkened; remainder of legs brownish black, the tarsi paling to light yellow, the color involving all the segments; legs, especially the hind pair, very long (see measurements). Wings subhyaline, vaguely patterned with pale brown, including the tip and vague washes over the cord and in cell *M* adjoining vein *Cu*; stigma dark brown, oval and more nearly vertical in position than in *manca*; prearcular field and costal region a trifle more yellowed; veins dark brown, those in the brightened portions slightly more yellowed. Venation: *Rs* somewhat longer and more arcuated than in *manca*; distance on margin between *Cu*₁ and *1st A* subequal in extent to *m*; vein *2nd A* strongly and evenly arched, not subangulate as in *manca*, the cell correspondingly wide.

Abdominal tergites buffy yellow, the caudal borders of the segments narrowly ringed with pale brown; sternites clear yellow; hypopygium obscure testaceous or buffy.

Habitat: Antilles.

Holotype, ♂, La Chaudiere, Hempstead River, Dominica, British West Indies, May 15, 1940 (Walter H. Hodge). Paratype, ♂, El Yunque, Puerto Rico, altitude 2600 feet, in sierra palm forest, May 25, 1945 (Harry D. Pratt). Types in Alexander Collection.

The most similar species is *Trentepohlia (Paramongoma) manca* (Williston), of St. Vincent, of which I possess a paratype male received through exchange with Edwards (windward side of island, altitude 1000 feet, H. H. Smith). In this latter the details of coloration are different, including the yellow halteres and uniform abdominal segments. The wings are more nearly hyaline, with the stigma pale brown, nearly circular in outline and with the venational details different, including the more angulated vein 2nd A, with the cell correspondingly narrow.

Gnophomyia Osten Sacken

Gnophomyia Osten Sacken; Proc. Acad. Nat. Sci. Philadelphia 1859: 223.

The typical subgenus (type, *tristissima* Osten Sacken; Nearctic) is widespread throughout Tropical America, from Mexico to Chile, including the Greater Antilles. Elsewhere in the World there are relatively few species in the Holarctic and Oriental Regions. The genus *Gnophomyia* has long served as a receptacle for flies having the same general appearance but actually belonging to distinct genera. Thus various species of *Aphrophila* Edwards in New Zealand were originally assigned to *Gnophomyia* both by Edwards and myself. In similar manner, New Zealand species of the subgenus *Campbellomyia* Alexander of the genus *Ctenolimnophila* Alexander (Hexatomini) were so placed. Various species of *Neognophomyia* were originally described as members of *Gnophomyia* before the two genera were finally separated. The true position of the South African *Gnophomyia capicola* Alexander may be held in question until the male sex can be studied. Further notes on other Tropical American species erroneously assigned to *Gnophomyia* are given at the end of the lists of species. At this time I am isolating a characteristic group of American *Gnophomyia* under the new name of *Eugnophomyia* (type, *luctuosa* Osten Sacken).

The characters of the typical subgenus have been given in full by Edwards (Trans. Soc. British Ent., 5, pt. 1: 104; 1938) and need not be repeated here.

Eugnophomyia, subgen. nov.

Faint traces of tuberculate pits at extreme cephalic border of praescutum. Macrotrichia in outer wing cells, sometimes reduced in number but usually very abundant. Male hypopygium with the

basistyle produced far beyond the point of insertion of the dististyles.

Type of subgenus: *Gnophomyia* (*Eugnophomyia*) *luctuosa* Osten Sacken (Eastern Nearctic).

Besides the subgenotype, the southwestern Nearctic *G. (E.) apache* Alexander belongs here, as also the following Neotropical species.

azrael Alexander. — Peru.

curraniana Alexander. — Panama.

darlingtoni Alexander. — Cuba.

flagrans Alexander. — Costa Rica.

funebis Alexander. — Eastern Brazil.

funerea Alexander. — Southeastern Brazil.

leucoplaca Alexander. — Amazonian Brazil.

melancholica Alexander. — Paraguay.

pammela Alexander. — Paraguay.

posticata Alexander. — Costa Rica.

tempestiva Alexander. — Peru.

vivas-berthieri Alexander. — Venezuela.

The subgenotype, *luctuosa*, is nearly restricted to the Austral zones of the southeastern United States. In Tropical America, the true home of the subgenus, species occur from Cuba and Central America southward to southeastern Brazil and Paraguay. The South African species that center about *elegans* (Wiedemann) may be found to be consubgeneric without too great distortion of the subgeneric characters (some of the species lack macrotrichia in the wing cells; for key, see Alexander, C. P., Rev. Zool. Bot. Africaine, 19: 356-358; 1930).

Based on the structure of the male hypopygium, this subgenus seems closer to *Aymaramyia* Alexander, discussed later, and it seems possible that it may later be transferred to *Aymaramyia* despite the glabrous wings and venational differences of the latter.

Gnophomyia s. s.

The various American species listed below seem to be correctly placed in the restricted subgenus *Gnophomyia*, although a few are still insufficiently known, while others (as *arcuata* and allies; *teleneura*) are more isolated. Based on the fundamental structure of the male hypopygium, definite relationships are shown with the genus *Quechuamyia* Alexander, discussed latter.

acricula Alexander. — Colombia.

apicularis Alexander. — Costa Rica.

arcuata Alexander. — British Guiana.

argutula Alexander. — Ecuador.

axillaris Alexander. — Peru.

banksiana Alexander. — Panama.

- bulbibasis* Alexander. — Ecuador.
caloptera Osten Sacken. — Brazil.
chilota Alexander. — Chile.
coxitalis Alexander. — Ecuador.
diazi Alexander. — Puerto Rico, Nevis.
dictena Alexander. — Ecuador.
digitiformis Alexander. — Venezuela.
distifurcula Alexander. — Peru.
duplex Alexander. — Ecuador.
emarginata Alexander. — Panama.
(fascipennis Osten Sacken, see *osten-sackeni*).
ferruginea Williston. — Mexico.
fessa Alexander. — Venezuela, Ecuador.
flebilis Alexander. — Ecuador.
fuscocostalis Alexander. — Venezuela.
justa Alexander. — Southeastern Brazil.
justoides Alexander. — Southeastern Brazil.
kerteszia Alexander. — Peru.
lachrymosa Alexander. — Panama.
lata Alexander. — Peru.
laticincta Alexander. — Panama.
longiterebra Alexander. — Peru.
longitergata Alexander. — Peru.
maestitia Alexander. — Peru.
magica Alexander. — British Guiana.
molinae Alexander. — Ecuador.
monophaea Alexander. — Mexico.
nectarea Alexander. — Ecuador.
nigrina (Wiedemann). — Brazil.
nimbifera Alexander. — Peru.
osten-sackeni Skuse. — Brazil.
oxymera Alexander. — Peru.
pallidapex Alexander. — Southeastern Brazil.
perlata Alexander. — Ecuador.
permagica, sp. n. — Peru.
podacantha Alexander. — Costa Rica.
porteri Alexander. — Ecuador.
propatula Alexander. — Costa Rica.
pulvinaris Alexander. — Costa Rica.
regnatrrix Alexander. — Peru.
rubicundula Alexander. — Peru.
spinibasis Alexander. — Peru.
stenophallus Alexander. — Venezuela.
stupens Walker. — Mexico.
stylacuta, sp. n. — Costa Rica.
subapicularis Alexander. — Costa Rica.
subhyalina Alexander. — Panama, Brazil.
subobliterata Alexander. — Mexico.
teleneura Alexander. — Ecuador.
triceps, sp. n. — Costa Rica.
tuber Alexander. — Ecuador.
tungurahua Alexander. — Ecuador.
vilis Alexander. — Colombia.
vitripennis Alexander. — Ecuador.

The venation of *pallidapex* is shown (Fig. 8).

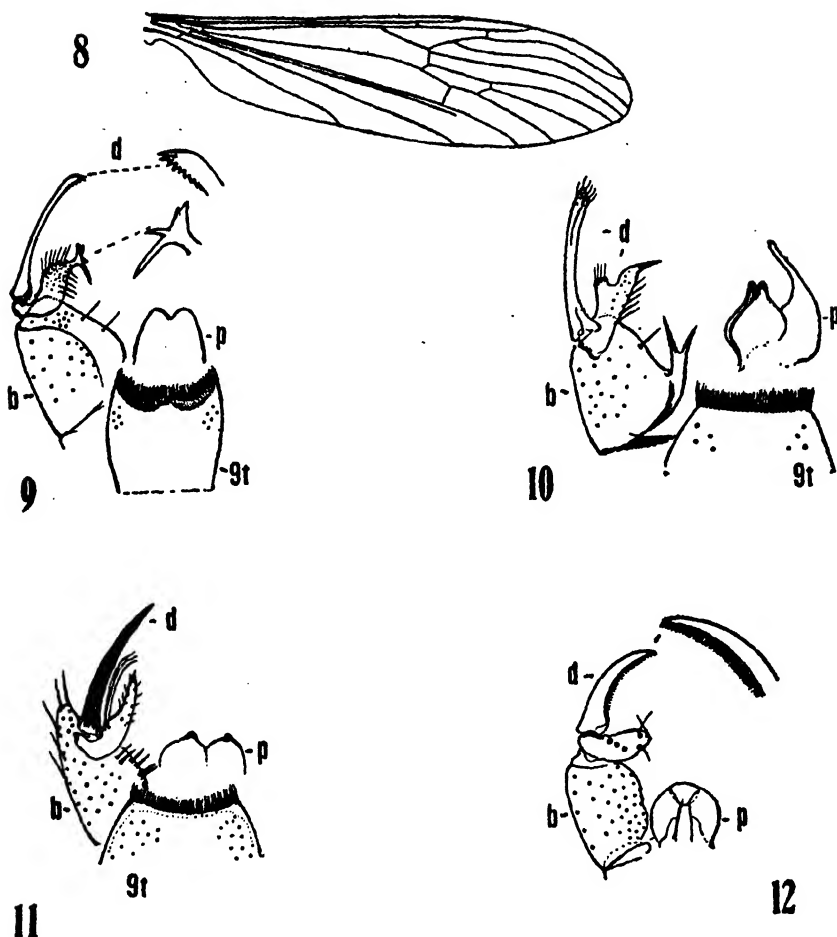


Fig. 8. *Gnophomyia (Gnophomyia) pallidapex* Alexander; venation. — Fig. 9. *Gnophomyia (Gnophomyia) triceps*, sp. n.; male hypopygium. — Fig. 10. *Gnophomyia (Gnophomyia) permagica*, sp. n.; male hypopygium. — Fig. 11. *Gnophomyia (Gnophomyia) stylacuta*, sp. n.; male hypopygium. — Fig. 12. *Gnophomyia (Gnophomyia) diazi* Alexander; male hypopygium. — (Symbols: *b*, basistyle; *d*, dististyles; *p*, phallosome; *t*, tergite).

The following notes on certain species are appended.

Gnophomyia luctuosa Osten Sacken. The reference to "Guatemala" (Alexander, C. P., Proc. U. S. Nat. Mus., 44: 522; 1913) was based on a single female specimen and is presumably erroneous. The species should be dropped from the Neotropical list until confirmed.

Gnophomyia magnifica Alexander (1913) is a *Sigmatomera*.

Gnophomyia olssoni Alexander (1919) is a *Shannonomyia*.

Gnophomyia osten-sackeni Skuse. A re-naming of *fascipennis* Osten Sacken, 1887, *nec fascipennis* Thomson, 1869.

Gnophomyia stupens Walker. Osten Sacken (1886, 1887) merely assumed that this species belonged to the present genus. The assignment is followed but requires confirmation.

Gnophomyia (Gnophomyia) permagica, sp. n.

Allied to *magica*; general coloration of body and appendages black, only the anterior lateral pretergites restrictedly bright yellow; wings with the ground weakly darkened, the cells basad of cord clearer; prearcular region and a very broad area at cord darker brown; R_{2-3-4} short and only slightly arcuated; *m-cu* about its own length beyond the fork of *M*; male hypopygium with the apex of tergite truncated or nearly so, fringed with about 80 dark-colored setae in an unbroken row; basistyle on proximal end of mesal face bearing a strong arm that terminates in two powerful black spines; outer dististyle nearly straight, at apex with about ten delicate setae; inner dististyle more or less bilobed, the outer lobe extended into a long straight spine.

Male. — Length, about 5.5 mm.; wing, 5 mm.; antenna, about 2.2 mm.

Female. — Length, about 6.5 mm.; wing, 6.2 mm.

Rostrum and palpi black. Antennae black throughout, relatively long; flagellar segments elongate, the verticils exceeding the segments, conspicuous. Head black.

Thorax uniformly black, sparsely pruinose, the restricted anterior lateral pretergites opposite the humeral region bright yellow. Halteres black. Legs black, the coxae sparsely pruinose. Wings with the cells basad of cord very faintly darkened, paler than those beyond the cord; prearcular region and a very broad and conspicuous area at the cord much darker brown, the latter ending behind at *Cu*; cells *C* and *Sc* less conspicuously darkened; veins brownish black. Venation: compared with *magica*, R_{2-3-4} shorter and less arcuated, less than twice R_{2-3} ; cells R_8 and R_4 shorter; cell *1st M*₂ smaller, less than vein M_4 ; *m-cu* its own length beyond the fork of *M*.

Abdomen, including hypopygium, black. Ovipositor with the genital shield polished black, the cerci a little paler, stout, strongly upcurved to the acute tips. Male hypopygium (Fig. 10) with the tergite, *9t*, broad, very gradually narrowed outwardly, the caudal border truncate or very slightly concave, with a continuous fringe

of long slender black setae, the entire series being of about the same length and thickness; the rows are at least double, making it difficult to count the total number but apparently about 80 in number. Basistyle, *b*, on mesal face at proximal end with a strong arm that terminates in two powerful black spines, the outer one longer; remainder of basistyle with several setae, one on mesal face at midlength stouter. Outer dististyle a slender nearly straight rod, at apex with about ten tubercles, each tipped with a delicate seta. Inner dististyle of distinctive shape, as shown, the outer portion slightly bilobed by a rounded notch; outer lobe extended into a long straight spine. Phallosome, *p*, with the gonapophyses paired, appearing as broadly flattened dark-colored plates, the apex narrowed to an obtuse knob; aedeagus yellow, a little longer than the apophyses.

Habitat: Peru.

Holotype, ♂, Iquitos, March-April 1931 (R. C. Shannon). Allotopotype, ♀. Types in Alexander Collection.

The species that is most similar to the present fly in its general appearance is *Gnophomyia* (*Gnophomyia*) *magica* Alexander, which is still known only from the female sex. This differs in the venation, as described above, and is evidently a distinct fly. The male sex, when discovered, will undoubtedly provide in its hypopygium even stronger characters for the separation of the two flies.

G n o p h o m y i a (*Gnophomyia*) *s t y l a c u t a*, sp. n.

Allied to *maestitia*; general coloration of body and appendages black; male hypopygium with the caudal margin of tergite very shallowly emarginate, with an unbroken fringe of about 70 spinous setae; mesal face of basistyle with about six strong black spinous setae; outer dististyle a glabrous, nearly straight rod, the tip acute; inner style gradually narrowed outwardly, the tip subacute.

Male. — Length, about 5 mm.; wing, 5 mm.; antenna, about 2.1 mm.

Rostrum and palpi black. Antennae black throughout, relatively long, more so than in *triceps*; flagellar segments elongate, slightly narrowed at either end; longest verticils about equal to the segments. Head dull black; anterior vertex broad; eyes protuberant.

Thorax black, the pronotal scutellar lobes light yellow; dorsopleural region narrowly buffy yellow; thoracic pleura pruinose, metapleura somewhat paler. Legs and halteres black throughout. Wings with a brownish tinge, cell *R* and most of

M paler; stigma long and narrow, darker brown; a brown seam in cell *M* along vein *Cu*, becoming obsolete at near three-fourths the length of the vein; veins brownish black. Venation: *Rs* in alignment with *R*₅; *R*₂₋₃₋₄ similarly in alignment with *R*₂₋₃; *m-cu* at midlength of cell 1st *M*₂.

Abdomen black throughout. Male hypopygium (Fig. 11) with the caudal margin of the tergite, *9t*, very shallowly emarginate, the lateral angles a very little produced; an unbroken fringe of about 70 black spinous setae, all generally equal in size and length. Basistyle, *b*, slightly produced beyond the level of the point of insertion of the dististyles; mesal face with six strong black spinous setae. Outer dististyle, *d*, appearing as a glabrous nearly straight rod, narrowed very gradually to the acute tip; inner dististyle subacute at apex, with scattered setae, including three of very unusual length on outer face near base. Gonapophyses, *g*, appearing as two separate lobes, each terminating in a blackened knob.

Habitat: Costa Rica.

Holotype, ♂, Turrialba, November 1922 (Pablo Schild); Alexander Collection, through kindness of Dr. A. L. Melander.

From other generally similar regional species, including *Gnophomyia* (*Gnophomyia*) *coxitalis* Alexander and *G. (G.) podacantha* Alexander, the present fly differs conspicuously in the structure of the male hypopygium.

Gnophomyia (*Gnophomyia*) *triceps*, sp. n.

Allied to *spinibasis*; general coloration black, the lateral ends of the pronotal scutellum and the narrow dorsopleural region yellow; antennae, halteres and legs black; wings with a strong and uniform brown tinge, the linear stigma darker brown; *m-cu* oblique, at near midlength of cell 1st *M*₂; male hypopygium with the caudal border of tergite concave, with probably at least 100 strong spinous setae arranged in several rows, the posterior border of the row sinuous; basistyle unarmed; outer dististyle unusually slender, terminating in two or three spines, the dorsal edge back from the spine with a series of four or five retrorse teeth; inner dististyle terminating in a group of three or four spinous points.

Male. — Length, about 4.8-5 mm.; wing, 4.5-5 mm.; antenna, about 2-2.1 mm.

Rostrum and palpi black. Antennae black throughout, relatively elongate; flagellar segments long-subcylindrical, the longest

verticils of the more proximal ones very slightly exceeding the segments. Head dull black; anterior vertex broad.

Rostrum and palpi black. Antennae black throughout, relatively elongate; flagellar segments long-subcylindrical, the longest verticils of the more proximal ones very slightly exceeding the segments. Head dull black; anterior vertex broad.

Pronotum brown, the lateral ends of the scutellum abruptly light yellow. Mesonotum dull black. Pleura black, more pruinose behind; dorsopleural region narrowly yellow. Halteres black. Legs black, coxae sparsely pruinose. Wings with a rather strong uniform dusky tinge, the linear stigma darker brown; veins brown. Venation: Sc_1 ending opposite fork of R_{2-3-4} , Sc_2 about opposite the fork of Rs ; R_{2-3-4} a little shorter than R_{2-3} ; R_{1-2} and R_{2-3} subequal; $r-m$ about twice the basal section of R_5 ; veins R_3 , R_4 and R_5 extending generally parallel to one another throughout their course; $m-cu$ oblique, at near midlength of cell 1st M_2 , the latter a little longer than M_4 .

Abdominal tergites, with the hypopygium, black, the sternites more brownish black. Male hypopygium (Fig. 9) with the tergite, $9t$, longer than broad, the caudal border concave, with probably at least 100 black spinous setae, arranged in several rows, at the midline with the posterior border of the row sinuous. Basistyle, b , unarmed. Outer dististyle, d , unusually slender, appearing as a nearly straight rod, a little expanded at outer end, terminating in two or three spines, the dorsal edge back from the spine with a series of four or five retrorse teeth that become gradually smaller and finally obsolete. Inner dististyle shorter, the base a compact oval structure, provided with long coarse setae, at tip narrowed into a neck that terminates in three or four spinous points, the decurved axial one longer. Phallosome, p , conspicuously notched at tip.

Habitat: Costa Rica.

Holotype, ♂, La Suiza de Turrialba, August (Pablo Schild); Melander Collection. Paratopotypes, ♂♂

Gnophomyia (*Gnophomyia*) *triceps* is most similar to *G. (G.) spinibasis* Alexander and *G. (G.) distifurcula* Alexander, differing especially in all details of structure of the male hypopygium, especially the ninth tergite and both dististyles.

Gnophomyia (Gnophomyia) diazi Alexander

Gnophomyia (Gnophomyia) diazi Alexander; Journ. Agr. Univ. Puerto Rico, 21: 184; 1937.

One male from the island of Nevis, taken on the south side of Mount Nevis, altitude 1000 feet, June 3, 1937 (Chester Roys); University of Michigan, through Rogers.

Originally described from the Luquillo Mountains, Puerto Rico. The male hypopygium (Fig. 12) has the outer dististyle, *d*, a gently curved blade with the entire inner or concave margin bearing a dense fringe or comb of relatively long spinous setae.

Quechuamyia Alexander

Quechuamyia Alexander; Rev. de Entomologia, 14: 495-497, figs. 6-9 (wings and venation, ♂ ♀), fig. 11 (♂ hypopygium); 1943.

The strange fly described as *Quechuamyia phantasma* Alexander (Ecuador: El Oro) is still known only from the type series of specimens and is the only known species of the genus. Despite the surprising dimorphism of the sexes, as shown by the venation and wing shape, the fundamental structure of the male hypopygium shows that the group is closely allied to *Gnophomyia* Osten Sacken.

Aymaramyia Alexander

Aymaramyia Alexander; Ann. Mag. Nat. Hist., (11) 10: 236-239, figs. 3, 4 (venation, ♂ hypopygium); 1943.

Known only from the type species, *Aymaramyia dubia* Alexander (Peru: Ayacucho). As indicated under the discussion of the subgenus *Eugnophomyia*, genus *Gnophomyia*, earlier in this report, there is an evident relationship between these two groups of flies. The venation is shown (Fig. 13).

Gymnastes Brunetti

Gymnastes Brunetti; Rec. Indian Mus., 6: 281, fig.; 1911.

Subgenus *Paragymnastes* Alexander

Paragymnastes Alexander; Proc. Linn. Soc. New South Wales, 47: 583; 1922.

The only known American species is *Gymnastes (Paragymnastes) perexquisita* Alexander, of southeastern Brazil (Minas Gerais, São Paulo, Santa Catharina). The genus is represented by numerous species in the Oriental and Australasian Regions, with fewer forms in the Ethiopian and south portions of the Eastern Palaearctic Regions. There can be no question of the generic reference of the present fly and its occurrence in the New World

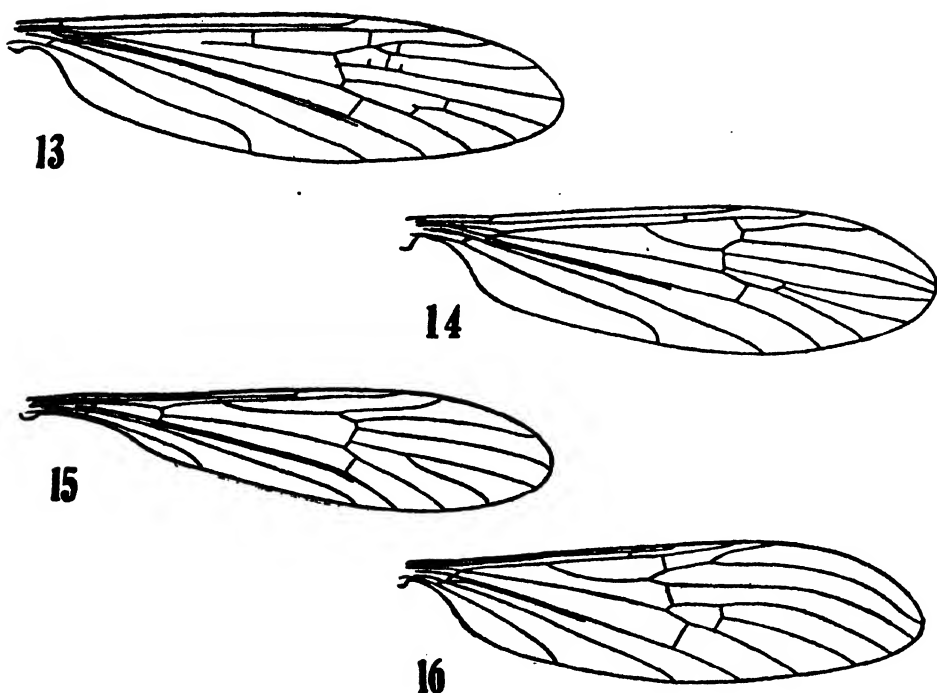


Fig. 13. *Aymaramyla dubia* Alexander; venation. — Fig. 14. *Gymnastes* (*Paragymnastes*) *perexquisita* Alexander; venation. — Fig. 15. *Jivaromyia problematica* Alexander; venation. — Fig. 16. *Neognophomyia schildi* Alexander; venation.

provides a problem in distribution (compare also *Trentepohlia*, subgenus *Mongoma*; *Styringomyia*; *Protothelius*, etc.). The venation is shown (Fig. 14).

Jivaromyia Alexander

Jivaromyia Alexander; Rev. de Entomologia, 14: 493-495, figs. 5, 10 (venation, ♂ hypopygium); 1943.

The very peculiar fly described as *Jivaromyia problematica* Alexander (Ecuador: El Oro) still remains the only known species of what seems evidently to be an isolated group of crane-flies. The characters have been detailed in the original reference. The venation is shown (Fig. 15).

Neognophomyia Alexander

Gnophomyia (*Neognophomyia*) Alexander; Ann. Ent. Soc. America, 19: 391-392; 1926.

The genus includes about a score of strictly Tropical American crane-flies, occurring at low and medium altitudes from Central America to southeastern Brazil and Paraguay. The Oriental and

eastern Palaearctic genus *Dasymallomyia* Brunetti has the fundamental plan of structure of the male hypopygium quite different from the present group and the resemblance shown by the venation does not seem to imply a close relationship.

The most peculiar feature of the venation is found in the great discrepancy in length between veins R_3 and R_{4-5} , the latter being very long and bent strongly caudad, ending at or very close to the wing tip (see Fig. 16, *Neognophomyia schildi*). As a result, cell R_3 at margin is disproportionately widened. Only in *paprzyckiana* is vein R_3 more lengthened so cells R_2 and R_3 at margin are more nearly equal in extent. The so-called "tergal spines" of the male hypopygium are very peculiar and provide excellent characters in the various species. The most primitive condition of these spines is found in *hirsuta* and *immaculipennis* where they are unusually small and inconspicuous.

List of Species.

- bisecta* (Alexander). — Amazonian Brazil.
- bisetosa* Alexander. — Peru.
- citripes* Alexander. — Peru.
- cochlearis* Alexander. — Ecuador.
- colombicola* Alexander. — Colombia.
- consociata* Alexander. — Ecuador.
- heliconiae* Alexander. — Panama.
- hirsuta* (Alexander); genotype. — Southeastern Brazil.
- hostica* Alexander. — Peru.
- immaculipennis* Alexander. — Southeastern Brazil, Paraguay.
- interrupta* Alexander. — Ecuador.
- latifascia* Alexander. — Peru.
- monophora* Alexander. — Venezuela.
- panamensis* Alexander. — Panama.
- paprzyckiana* Alexander. — Peru.
- pervicax* (Alexander). — Peru.
- productissima* Alexander. — Costa Rica.
- scapha* Alexander. — Ecuador.
- schildi* Alexander. — Costa Rica.
- sparsiseta* Alexander. — Peru.
- spectralis* Alexander. — Ecuador.
- trinitatis* Alexander. — Trinidad.

Neognophomyia productissima Alexander

Costa Rica: La Caya, near San Jose, altitude 1150 meters, August-September 1946, abundant (Enrique Schmidt).

Neognophomyia schildi Alexander

Costa Rica: La Suiza de Turrialba, April 1922; March 1924; September 1925; March, June, August 1926 (Pablo Schild); in Melander Collection.

Gonomyia Meigen

Gonomyia Meigen; Syst. Besch. Eur. Dipt., 1: 146; 1818.

A vast aggregation of small crane-flies, including hundreds of species, distributed in about a dozen subgeneric groups. Certain of these so-called subgenera may well be found to represent valid generic groups, such a disposition being suggested by the fundamental plan of structure of the male hypopygium and the venation, especially the condition of the arcus. *Progonomyia*, *Idiocera* and *Gonomyina* are examples of groups that require further critical analysis.

The genus is world-wide in distribution, including species in all major regions and subregions of the world, including many of the more remote Pacific Islands (Hawaii, Marquesas, Society Islands, Samoa, Fiji). In the Tropical American fauna I recognize the following subgenera:

Progonomyia Alexander

Gonomyina Alexander

Idiocera Dale

Euptilostena Alexander

Gonomyia Meigen

Lipophleps Bergroth

Paralipophleps, subgen. n.

Neolipophleps, subgen. n.

Progonomyia Alexander

Gonomyia (*Gonomyella*) Alexander; Ann. South African Mus., 1917: 152; 1917 (preoccupied).

Gonomyia (*Progonomyia*) Alexander; Cornell Univ., Mem. 38: 938; 1921.

Venation: Vein Sc long, usually ending opposite or beyond midlength of Rs , Sc_2 some distance from its tip; vein R_2 retained; cell M_2 open by the atrophy of basal section of vein M_3 ; $m-cu$ at or very close to fork of M ; anterior arcus preserved. *Gonomyia* (*Progonomyia*) *destricta* Alexander (Fig. 17).

Virtually all of the known species are Tropical American, with three species, including the subgenotype, *slossonae* Alexander, in the southern Nearctic Region. A few additional species that seem to be consubgeneric occur in South Africa.

List of Species.

acanthias Alexander. — Peru.

acrissima Alexander. — Ecuador.

altivolans Alexander. — Peru.

argentinensis Alexander. — Argentina.

atroapicata Alexander. — Mexico.

balzapambae Alexander. — Ecuador.

bifasciolata Alexander. — Cuba, Mexico, Panama.

- catamarcensis* Alexander. — Argentina.
compacta Alexander. — Venezuela.
destricta Alexander. — Southeastern Brazil.
dolorosa Alexander. — Brazil.
eriopteroides Alexander. — Paraguay.
forceps Alexander. — Peru.
histrionica Alexander. — Peru.
hyperplatys Alexander. — Ecuador.
maesta Alexander. — Argentina.
ominosa Alexander. — Paraguay.
paraensis Alexander. — Eastern Brazil.
paramoensis Alexander. — Venezuela.
patruelis Alexander. — Mexico.
peruviana Alexander. — Peru.
(platymera Alexander, see *platymerella*) -
platymerella, nom. n. (for *platymera*). — Peru.
pleurolineata Alexander. — Argentina.
quinqueplagiata Alexander. — Southeastern Brazil, Argentina.
saturata Alexander. — Southeastern Brazil.
saxicola Alexander. — Argentina.
serena Alexander. — "South America" — Winthem.
slossonae Alexander; subgenotype. — Southeastern United States,
 Greater Antilles, Mexico.
subcostata Alexander. — Panama.
subsaturata Alexander. — Brazil.
synchroa Alexander. — Patagonia.
synchroa setosivena Alexander. — Chile.
tesselata Alexander. — Peru.
thiosema Alexander. — Argentina.
velutina Alexander. — Peru.
weiseri Alexander. — Argentina.

Gonomyia Alexander

Gonomyia (Gonomyina) Alexander; Almeida Commemorative Vol., No. 1: 5-6; 1946.

Venation: *Sc* long; *R*₂ lacking; vein *R*₃ chiefly atrophied, at most only the base represented by a spur, in *persimilis* entirely atrophied; cell 1st *M*₂ closed; *m-cu* beyond the fork of *M*; anterior arculus preserved.

All of the known species are Tropical American and, as determined to the present, all from Brazil.

- durabilis* Alexander; subgenotype. — Southeastern Brazil.
parishi (Alexander). — Eastern Brazil.
persimilis (Alexander). — Eastern Brazil.
runa, sp. n. — Southeastern Brazil.

Gonomyia (Gonomyina) runa, sp. n.

General coloration of anterior portion of mesonotum brown, the posterior sclerites more brownish yellow; antennae relatively long, if bent backward extending about to the wing-root; knobs of halteres dark brown; wings with a pale grayish tinge; *Sc* long,

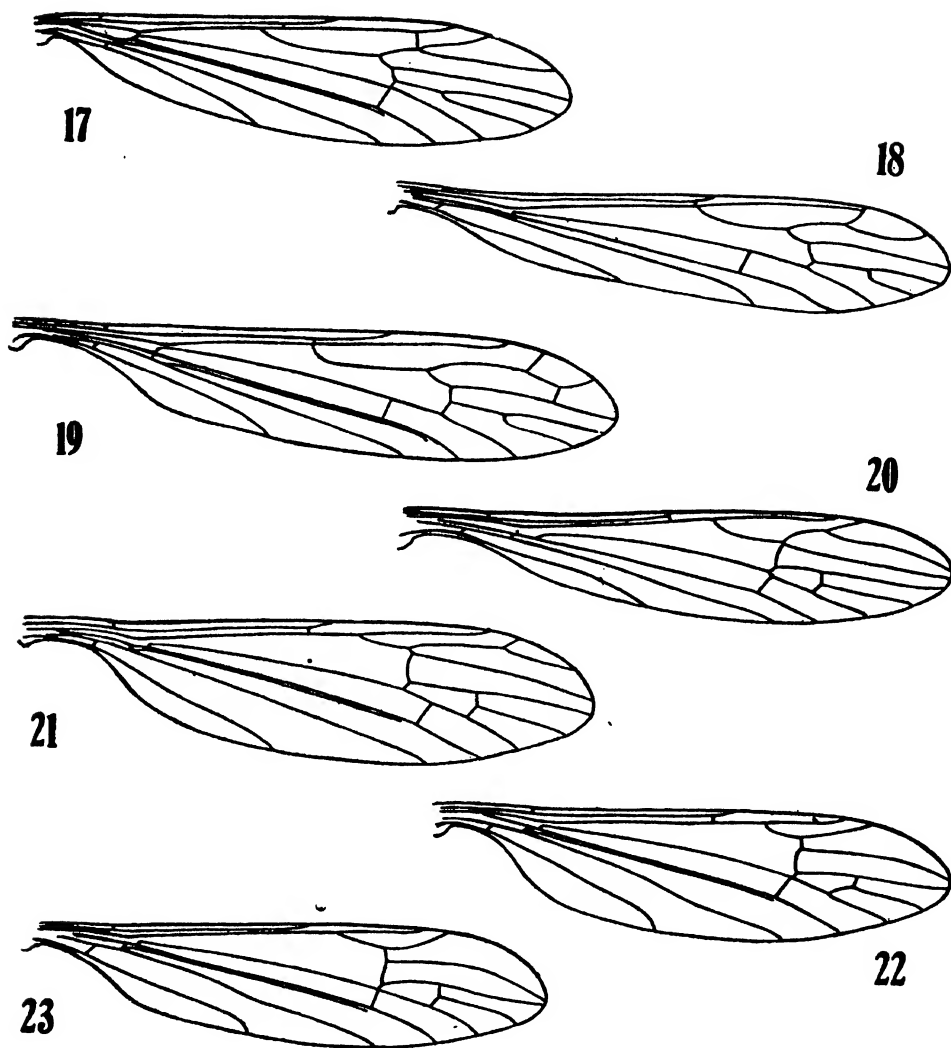


Fig. 17. *Gonomyia (Progonomyia) destrieta* Alexander; venation. — Fig. 18. *Gonomyia (Idiocera) hoogstraali* Alexander; venation. — Fig. 19. *Gonomyia (Euptlostena) dampfiana* Alexander; venation. — Fig. 20. *Gonomyia (Gonomyia) subbrevicula*, sp. n.; venation. — Fig. 21. *Gonomyia (Gonomyia) birama* Alexander; venation. — Fig. 22. *Gonomyia (Lipophleps) hoffmaniana*, sp. n.; venation. — Fig. 23. *Gonomyia (Paralipophleps) pleuralis* (Williston); venation.

Sc_1 ending about opposite three-fifths the length of R_s ; cell 1st M_2 nearly as long as distal section of vein M_{1-2} ; male hypopygium with the inner dististyle having the point long and slender, subapical in position; aedeagus very long, especially the subhyaline apical portion, at the outer bend with a spinous point.

Male. — Length, about 4.5 mm.; wing, 5 mm.

Rostrum and palpi brown. Antennae relatively long, if bent backward extending approximately to the wing-root; scape and pedicel brownish yellow, flagellum brownish black; flagellar segments long subcylindrical, with long verticils. Head gray; anterior vertex broad.

Pronotum testaceous yellow. Mesonotum anteriorly medium brown, the praescutum with three confluent darker brown stripes; posterior sclerites of notum more brownish yellow. Pleura medium brown. Halteres short, stem yellow, knob dark brown. Legs with the fore and middle coxae light brown. posterior coxae yellow; trochanters yellow; remainder of legs medium brown, the outer tarsal segments darker brown. Wings with a weak grayish tinge, the prearcular and costal fields pale yellow; stigma not indicated; veins pale brown, even paler in the yellow fields. Venation: *Sc* long, *Sc*₁ ending about opposite three-fifths *Rs*, *Sc*₂ not clearly evident; *Rs* long, a little exceeding vein *R*₄; tip of vein *R*₃ atrophied or virtually so, lying very close to the tip of vein *R*₁₋₂; cell 1st *M*₂ closed, nearly as long as the distal section of vein *M*₁₋₂; *m-cu* about one-third its length beyond the fork of *M*.

Abdominal tergites brown; sternites and hypopygium yellow. Male hypopygium (Fig. 24) with the apical lobe of basistyle, *b*, short and stout. Outer dististyle, *d*, with the arms very unequal, the inner one widened basally. Inner dististyle with the point subapical, long and slender, gently curved. Aedeagus, *a*, with an acute spinous point on margin at the second bend, the very long apex entirely subhyaline.

Habitat: Brazil.

Holotype, ♂, Nova Teutonia, Santa Catharina, October 26, 1944 (Fritz Plaumann); Alexander Collection.

The present fly is most similar to the subgenotype, *durabilis*, differing most evidently in the structure of the male hypopygium. I am interpreting the smallest dististyle as being the intermediate one of the three.

Idiocera Dale

Limnobia (*Idiocera*) Dale; Ann. Mag. Nat. Hist., 8: 431, 433; 1842.

Ptilostena Bergroth; Ann. Mag. Nat. Hist., (8) 11: 575-576, figs.; 1913.

Pseudogonomyia Santos Abreu; Mem. Real Acad. Cien. Art. Barcelona, 18, No. 4: 107-108, figs.; 1923.

Venation: Vein *Sc* variable in length, in its shortest condition ending opposite the origin of *Rs*, in other species much longer; cell *R*₃ small, its petiole correspondingly lengthened; vein *R*₂ atrophied; no supernumerary crossveins; cell *M*₂ open by the atrophy of basal section of *M*₃; *m-cu* at least its own length before

the fork of *M*; anterior arculus weakly preserved or evidently lacking. In several species, veins R_{1-2} and R_3 are contiguous or confluent at the margin, closing cell R_1 . *Gonomyia* (*Idiocera*) *hoogstraali* Alexander (Fig. 18).

There are relatively numerous species in the Holarctic Region, with fewer in the Ethiopian, Oriental and Australasian Regions. In Tropical America found only in the extreme northern portions and evidently derived from the Nearctic fauna.

angustissima Alexander. — Cuba.

hoogstraali Alexander. — Mexico.

Euptilostena Alexander

Euptilostena Alexander (name omitted in text through a typographical error); Philippine Journ. Sci., 66: 126-127; 1938.

Venation: As in *Idiocera*, differing in the possession of a supernumerary crossvein in cell R_4 , connecting veins R_4 and R_5 ; in *polingi* with a series of from 10 to 12 supernumeraries in cell *C*; anterior arculus apparently lacking or very weakly preserved.

Gonomyia (*Euptilostena*) *dampfiana* Alexander (Fig. 19)

Male hypopygium of peculiar structure, in some regards strongly suggesting the condition in the genus *Molophilus* (compare *dampfiana* and the *ruficollis* subgroup of *Molophilus*).

Besides the two species occurring in the extreme northern part of Tropical America, a very few others occur in the Palearctic, Nearctic and Oriental Regions.

dampfiana Alexander. — Mexico.

polingi Alexander. — Southeastern United States, Mexico.

Gonomyia Meigen

Gonomyia Meigen; Syst. Besch. Eur. Dipt., 1: 146; 1818.
Gonomyia Osten Sacken; Mon. Dipt. North America, 4: 176.

Venation: Sc_1 usually ending opposite, slightly before or a short distance beyond origin of Rs , the shortest condition being found in species such as *brevicula*, *brevissima*, etc.; in a few forms, Sc is longer, extending to about opposite midlength of Rs ; cell R_3 present and usually relatively large (as compared with its condition in some species of the subgenus *Lipophleps*, q. v.); cell 1st M_2 is closed or open by the atrophy of basal section of M_3 ; *m-cu* opposite or beyond the fork of *M*, in cases at midlength of cell 1st M_2 ; anterior arculus lacking. *Gonomyia* (*Gonomyia*)

subbrevicula, sp. n. (Fig. 20); *G. (G.) birama* Alexander (Fig. 21).

A vast aggregation of species, most numerous in the Holarctic and Neotropical Regions, with fewer forms in the Ethiopian, Oriental and Australasian Regions.

List of Species.

- aequalis* Alexander. — Guatemala.
andicola Alexander. — Colombia.
anduzei Alexander. — Venezuela.
anserina Alexander. — Peru.
appendiculata Alexander. — Peru.
aspera Alexander. — Peru.
bifurciper Alexander. — Costa Rica.
bifurcula Alexander. — Mexico.
birama Alexander. — Peru.
brevicula Alexander. — Cuba.
brevissima Alexander. — Cuba.
catamarcae Alexander. — Argentina.
chiapasensis Alexander. — Mexico.
connivens Alexander. — Mexico.
crinita Alexander. — Ecuador, Peru.
debilis Alexander. — Mexico.
delicata Alexander. — Guatemala.
efficiens Alexander. — Peru.
expansa Alexander. — Mexico.
flavibarsis Alexander. — Western United States, Mexico.
gemula Alexander. — Southeastern Brazil.
guerreroensis Alexander. — Mexico.
illicis Alexander. — Argentina.
jejuna Alexander. — Peru.
juarezi Alexander. — Mexico.
megarhopala Alexander. — Mexico.
methodica Alexander. — Colombia.
mexicana Alexander. — Mexico.
microserrata Alexander. — Mexico.
multispicata Alexander. — Mexico.
ostentator Alexander. — Mexico.
platymerina Alexander. — Ecuador.
quaesita Alexander. — Mexico.
queribunda Alexander. — Peru.
remigera Alexander. — Mexico.
remota Alexander. — Salvador.
remota obtusistyla Alexander. — Panama.
salmani Alexander. — Salvador.
serpentina Alexander. — Southeastern Brazil.
stellata Alexander. — Mexico.
subbrevicula, sp. n. — Puerto Rico.
subremota Alexander. — Mexico.
triaculeata Alexander. — Mexico.
(tuberculata Alexander, see *flavibasis*)
unicolor Alexander. — Mexico, Guatemala, Salvador.

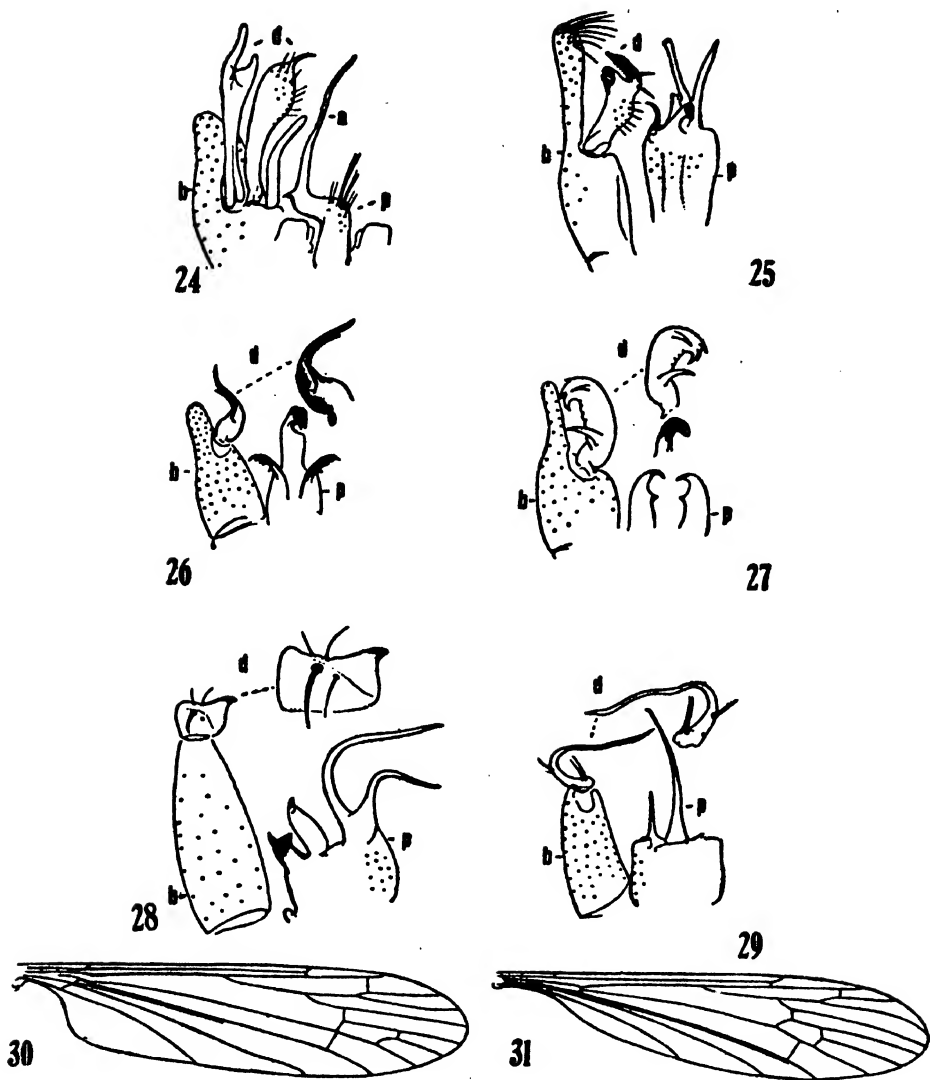


Fig. 24. *Gonomyia* (*Gonomyia*) *runa*, sp. n.; male hypopygium. — Fig. 25. *Gonomyia* (*Lipophleps*) *pedica*, sp. n.; male hypopygium. — Fig. 26. *Gonomyia* (*Lipophleps*) *nestor*, sp. n.; male hypopygium. — Fig. 27. *Gonomyia* (*Lipophleps*) *basispinosa* Alexander; male hypopygium. — Fig. 28. *Gonomyia* (*Lipophleps*) *puella* (Williston); male hypopygium. — Fig. 29. *Gonomyia* (*Lipophleps*) *hoffmaniana*, sp. n.; male hypopygium. — Fig. 30. *Aphrophila carbonaria* Alexander; venation. — Fig. 31. *Lipsothrix neotropica* Alexander; venation. — (Symbols: a, aedeagus; b, basistyle; d, dististyle; p, phallosome).

Gonomyia (*Gonomyia*) *subbrevicula*, sp. n.

Allied to *brevicula*; general coloration of mesonotum dark brown, the lateral portions of the praescutum yellow; scutellum darkened; pleura with two narrow dark brown longitudinal stripes;

halteres dusky; legs brownish black; wings with a faint brownish tinge, the stigma slightly darker; R_{2-3-4} strongly arcuated; abdominal tergites dark brown, the posterior-lateral angles of the intermediate segments with small yellow triangles.

Female. — Length, about 5 mm.; wing, 4.5 mm.

Rostrum and palpi black. Antennae with the basal two segments yellow; flagellum broken. Head brownish gray; eyes large, reducing the anterior vertex to a narrow strip that is less than the diameter of the scape.

Pronotum yellow, weakly darkened medially above; pretergites pale yellow. Mesonotum dark brown, the humeral and lateral portions of the praescutum yellow; median region of scutum testaceous yellow; scutellum darkened; postnotum obscure yellow, the posterior border brownish black. Pleura yellow, with two narrow but conspicuous dark brown longitudinal stripes, the first extending from the propleura across the dorsal pleurites to the posterior portion of the mediotergite and the abdomen; ventral stripe occupying the ventral sternopleurite, extreme bases of mid and hind coxae, and part of the meron. Halteres dusky. Legs with the coxae yellow, the bases of the middle and hind pairs darkened, as described; trochanters obscure yellow; remainder of legs brownish black. Wings (Fig. 20) with a faint brownish tinge, the stigma slightly darker, the prearcular and costal fields more whitened; veins browns, somewhat paler in the costal field. Venation: Sc relatively short, Sc_1 ending before origin of Rs a distance about one-half the length of the latter vein, Sc_2 at extreme tip of Sc ; R_{2-3-4} shorter and more strongly arcuated than in *brevicula*; $r-m$ very close to the fork of Rs .

Abdominal tergites dark brown, the extreme postero-lateral borders of the intermediate segments with small yellow triangles; sternites uniformly obscure yellow; genital shield obscure brownish yellow.

Habitat: Puerto Rico.

Holotype, ♀, El Semil, altitude 1700 feet, May 10, 1940 (William A. Hoffman); Alexander Collection.

The present fly is closest to the Cuban *Gonomyia* (*Gonomyia*) *brevicula* Alexander, differing in slight details of body coloration and in the venation, especially the very strongly arcuated R_{2-3-4} .

Lipophleps Bergroth

Leiponeura Skuse; Proc. Linn. Soc. New South Wales, (2) 4: 795; 1890; (preoccupied).
Lipophleps Bergroth; Psyche, 22: 55; 1915.

Venation: In all species of the *manca* group, only two branches of *Rs* reach the margin, the missing one being *R*₃, with *R*₄ and *R*₅ persistent; in the *sulphurella* group (not Neotropical), vein and cell *R*₃ persist but the cell is small and evidently in process of being lost. *Sc* short to very short, usually ending far before origin of *Rs*, in cases to shortly beyond this point; cell 1st *M*₂ closed (in the local fauna); *m-cu* at or close to fork of *M*; anterior arculus lacking. *Gonomyia* (*Lipophleps*) *hoffmaniana*, sp. n. (Fig. 22).

Male hypopygium often complex in structure, including both the dististyle and phallosome. Several species that center about *orthomera* have the basistyle produced beyond the point of insertion of the dististyle as a strong spine or sclerotized rod, while many others have a comparable fleshy lobe, sometimes of unusual length. Numerous species, as *arajuno*, *bifiligera* and many others, have the dististyle simple, pale and fleshy; still others have this modified into a strong spine or curved hook. In a few species, the dististyles of the two sides are asymmetrical. In similar manner the armature of the phallosome may be symmetrical, as in *basi-spinosa* and other allied forms, or entirely asymmetrical, with none of the elements paired. The outer margin of the tergite is variously armed with a fringe or comb of spinous setae.

All of the numerous American species of *Lipophleps*, as now restricted, are referred to a single group that I have called the *manca* group from its first described species, *manca* Osten Sacken (Eastern Nearctic). The Old World species of the subgenus are very numerous in the Ethiopian, Oriental, Eastern Palaearctic and Australasian Regions, including many of the remote Pacific Islands. Most of these latter forms have not been critically assigned to groups of species and many of them may evidently be safely referred to the *manca* group, as here discussed. The subgenotype, *gracilis* (Skuse) is Australian. It should be noted here that two very characteristic American groups have been referred to two new subgenera, discussed later: *Paralipophleps* (*pleuralis* group) and *Neolipophleps* (*cinerea* group).

List of Species.

The *manca* group

- adunca* Alexander. — Argentina.
anduzeana Alexander. — Venezuela.
arajuno Alexander. — Ecuador.
basispinosa Alexander. — Southeastern Brazil.
batesi Alexander. — Panama.
bicornuta Alexander. — Puerto Rico.
bifiliger Alexander. — Puerto Rico.
bispinosa Alexander. — Peru.
borburatana Alexander. — Venezuela.
bruchi Alexander. — Argentina.
calverti Alexander. — Costa Rica.
calverti pleurostriata Alexander (see *calverti pleurotaeniata*)
calverti pleurotaeniata Alexander. — Costa Rica.
cantareirae Alexander. — Southeastern Brazil.
carrerae Alexander. — Southeastern Brazil.
cervaria Alexander. — Colombia.
clavifera Alexander. — Peru.
crepuscula Alexander. — Peru, Paraguay.
ctenophora Alexander. — Peru, Bolivia.
cubana Alexander. — Cuba.
cultrata Alexander. — Ecuador.
diacanthophora Alexander. — Peru.
dotata Alexander. — Peru.
duurvoorti Alexander. — Surinam.
extensa Alexander. — Panama, British Guiana, Trinidad.
gillottae Alexander. — Costa Rica.
haploa Alexander. — Mexico.
haploides Alexander. — Mexico, Costa Rica.
hoffmaniana, sp. n. — Puerto Rico.
impedita Alexander. — Mexico.
inermis Alexander. — British Guiana, Brazil, Peru.
juquiana Alexander. — Southeastern Brazil.
leonura Alexander. — Ecuador.
lustralis Alexander. — Costa Rica.
macintyre Alexander. — Ecuador.
macswaini Alexander. — Costa Rica, Panama.
maya Alexander. — Mexico.
misera Alexander. — Argentina.
mythica Alexander. — Peru.
nestor, sp. n. — Southeastern Brazil.
orthomera Alexander. — Puerto Rico.
orthomeroides Alexander. — Mexico.
parinermis Alexander. — Venezuela.
pedica, sp. n. — Southeastern Brazil.
petronis Alexander. — Southeastern Brazil.
philomela Alexander. — Peru.
phoroctenia Alexander. — Peru.
pilosispina Alexander. — Southeastern Brazil.
producta Alexander. — Puerto Rico, Antigua, Mexico, Ecuador.
projecta Alexander. — Ecuador, Peru.
prolixistylus Alexander. — Mexico, British Honduras.
prolongata Alexander. — Venezuela, Ecuador.

- puella* (Williston). — Lesser Antilles (St. Vincent).
puer Alexander. — Southeastern United States, Mexico, British Guiana, Ecuador, Peru.
pyensoni Alexander. — Amazonian Brazil.
ramus Alexander. — Ecuador.
reyesi Alexander. — Mexico.
sana Alexander. — Paraguay.
sandersi Alexander. — Cuba.
scelerata Alexander. — Peru.
scimitar Alexander. — British Guiana.
secespita Alexander. — Southeastern Brazil.
senaria Alexander. — Peru.
spicata Alexander. — Peru.
subinermis Alexander. — Mexico.
subscimitar Alexander. — Peru.
subterminalis Alexander. — Cuba, Puerto Rico.
subtribulator Alexander. — Peru.
tergofimbriata Alexander. — British Guiana.
tribulator Alexander. — Peru.
trionyx Alexander. — Southeastern Brazil.
vindex Alexander. — Venezuela.

It may be observed that various species of this subgenus and the two later described have been assigned to certain entirely unrelated genera by different authors. This confusion was brought about by unfamiliarity with critical genera. Some of the instances are reference to *Limonia* (*Dicranomyia*) by Coquillett (*curvivena* Coquillett, a synonym of *manca* Osten Sacken) and by Doane (*cinerea*); *Elliptera* by Johnson (*alexanderi* Johnson), and *Atarba* by Williston (*puella* Williston, *pleuralis* Williston).

Gonomyia (*Lipophleps*) *hoffmaniana*, sp. n.

Belongs to the *manca* group; general coloration gray; thoracic pleura gray, striped longitudinally with yellow; legs brownish black; wings with a faint brownish tinge, the prearcular and costal portions more whitened; stigma only a trifle darker than the ground; Sc relatively short; male hypopygium with the dististyle single, apical in position, appearing as a very long, sinuous rod with a single fasciculate seta on its basal portion; phallosome bearing a long apical spine and a shorter straight one near its base.

Male. — Length, about 3.5 mm.; wing, 3.5 mm.

Rostrum and palpi black. Antennae black throughout; flagellar verticils of male elongate. Head gray; eyes very large.

Pronotum yellow above, infuscated on sides. Anterior lateral

pretergites very obscure yellow. Mesonotum dark gray, the scutellum scarcely brightened except on ventral margin. Pleura dark gray with a conspicuous longitudinal obscure yellow stripe, pleurotergite similarly obscure yellow. Halteres obscure yellow. Legs with the coxae and trochanters testaceous brown; remainder of legs brownish black. Wings (Fig. 22) with a faint brownish tinge, the prearcular and costal portions more whitened; stigma oval, a trifle darker than the ground; veins pale brown, more yellowish brown in the brightened areas. Venation: *Sc* relatively short, *Sc*₁ ending a distance before the origin of *Rs* that is only a little less than the total length of the latter, *Sc*₂ a short distance from its tip; *m-cu* just before the fork of *M*.

Abdominal tergites variegated yellow and pale brown, the latter color including the broad apices of the segments; sternites more extensively yellow, the darkened borders narrower; outer segments more extensively darkened; hypopygium extensively yellow, the cephalic ends of the basistyles darkened. Male hypopygium (Fig. 29) with the dististyle, *d*, single, apical in position, appearing as a very long sinuous rod from a slightly dilated base, the apical half blackened; a single strong fasciculate seta on face of expanded portion; apex of style acute, before tip with microscopic setulae. Phallosome, *p*, consisting of a pale subquadrate mass that terminates in a long, gently curved spine, with a further small straight spine near its base.

Habitat: Puerto Rico.

Holotype, ♂, El Semil, altitude 1700 feet, May 7, 1940 (William A. Hoffman); Alexander Collection.

I take pleasure in dedicating this distinct fly to the late Dr. William Albert Hoffman (1894-1943) to whom I am indebted for numerous Tipulidae from Puerto Rico. Superficially the male hypopygium is most like that of *Gonomyia* (*Lipophleps*) *producta* Alexander and *G. (L.) prolixistylus* Alexander, both of which have the dististyle similarly very long and slender but subapical in position, the outer angle of the basistyle being produced into a long pale lobe. Both of these species have the fasciculate bristle placed on a separate lobe or inner style and not on the spine itself, as in the present fly. Furthermore, the apical lobes of the phallosome in these two species are paired, not asymmetrical as in *hoffmaniana*.

Gonomyia (Lipophleps) puella (Williston)

Atarba puella Williston; Trans. Ent. Soc. London, 1896: 288-289, fig. 60; 1896.

Described from the island of St. Vincent, Lesser Antilles, where it was collected by the late Mr. Herbert H. Smith and has apparently never been re-discovered. I am greatly indebted to Dr. Curran for the privilege of studying one of Williston's cotypes. The fly has long proved a stumbling block among the now numerous Neotropical members of the subgenus.

Male hypopygium (Fig. 28) with the basistyle, *b*, long and slender. Dististyle, *d*, simple, terminal in position, transverse, the inner apical angle produced into a short blackened point. Phallosome, *p*, large and complex, asymmetrical, bearing two long slender spines and two additional short blackened points, as shown. The longest of the spines is evidently the one figured by Williston in his diagram of the hypopygium of this fly (l. c., fig. 60a).

Among the described species this is closest to *Gonomyia (Lipophleps) crepuscula* Alexander and *G. (L.) ctenophora* Alexander, both of Amazonian Peru, differing conspicuously in the structure of the dististyle and phallosome.

Gonomyia (Lipophleps) nestor, sp. n.

Male. — Length, about 3.2 mm.; wing, 3.7 mm.

Characters as in *basispinosa* Alexander, differing in the structure of the male hypopygium (Fig. 26), as follows:

Dististyle, *d*, with the basal third enlarged and bearing an acute black spine, the outer two-thirds slender and gently sinuous, with a small lateral spinous point at near two-thirds the length of style. Phallosome, *p*, symmetrical, the lateral apophysis with its apex prolonged, blackened, the margin microscopically toothed; inner apophyses paired, the small blackened heads with decurved points.

In *basispinosa* (Fig. 27), the dististyle, *d*, is much stouter and differently armed, beyond the basal spine being more enlarged and strongly curved at tip, with two or three points at and near apex, additional to the subterminal one. Phallosome, *p*, with the lateral apophyses quite different in outline, provided with only two darkened points.

Habitat: Brazil.

Holotype, ♂, Sumaré, São Paulo, altitude 800 meters, December 21, 1940 (Messias Carrera); Alexander Collection, through Carrera.

Gonomyia (Lipophleps) pedica, sp. n.

Belongs to the *manca* group; pleura with a poorly indicated silvery stripe; vein *Sc* ending about opposite origin of *Rs*; male hypopygium with the outer lobe of basistyle very long, nearly twice the dististyle, at apex with unusually long setae; dististyle terminating in two blackened points, between which lies a paler, more obtuse blade; phallosome asymmetrical, terminating in two elongate pale points and two short blackened structures, one a slender sinuous spine.

Male. — Length, about 3.8 mm.; wing, 4 mm.

Rostrum yellowish brown; palpi black. Antennae black throughout, elongate, the flagellar segments long-cylindrical, with an abundant long erect pubescence, additional to the sparse scattered verticils. Head dark gray.

Pronotum and pretergites yellow. Mesonotum almost uniformly medium brown, the median region of scutum and the narrow posterior border of the scutellum obscure yellow. Pleura dark reddish brown, with a poorly indicated more silvery longitudinal stripe across the more ventral sclerites. Halteres with stem obscure yellow, knob dark brown. Legs with the coxae pale brown; trochanters testaceous yellow; remainder of legs brown, the femora somewhat darker. Wings with a faint grayish tinge, the prearcular and costal fields more whitened; stigmal area very diffuse, slightly darker than the ground; veins brown. Venation: *Sc*₁ ending about opposite origin of *Rs*, *Sc*₂ a slight distance from its tip, *Sc*₁ alone more than one-half *r-m*; *Rs* weakly angulated at origin; *m-cu* shortly before the fork of *M*.

Abdomen above brown, the sternites and hypopygium more brownish yellow. Male hypopygium (Fig. 28) with the outer lobe of basistyle, *b*, very long, nearly twice as long as the dististyle, more swollen outwardly and provided with very long conspicuous setae. Dististyle, *d*, about as figured, terminating in two blackened points, of which the outermost is longest, its lower margin with a fringe of delicate setae; between these two points a more obtuse paler blade. Phallosome, *p*, with two long slender elements, one

pointed at tip, and with two short blackened structures, one a slender sinuous spine.

Habitat: Brazil.

Holotype, ♂, Campo Bello, Rio de Janeiro, February 22, 1939 (J. F. Zikán); Alexander Collection.

This species is allied to *Gonomyia* (*Lipophleps*) *petronis* Alexander, *G. (L.) pilosispina* Alexander, *G. (L.) secespita* Alexander, and *G. (L.) trionyx* Alexander, all of which have the asymmetrical phallosome of approximately similar structure but all showing important differences in the conformation of the dististyle.

Paralipophleps, subgen. n.

Characters as in *Lipophleps*, differing especially in certain basic differences in structure of the male hypopygium. Basistyle produced into an outer fleshy lobe and one or more blackened spines or spinous points, including two such in the subgenotype and some others; a single dististyle. Phallosome distinctive, usually symmetrical, provided with an elongate outer pair of spines and usually with a shorter, more basal, often recurved plate that terminates in a pair of small spines or points, these latter very weak in species such as *amazona*, *bifida* and others, longer in *pleuralis*, *spinistyla* and others.

The venation of the subgenotype, *pleuralis*, is shown (Fig. 23).

Type of subgenus: *Gonomyia* (*Paralipophleps*) *pleuralis* (Williston).

As known, members of the subgenus are found only in the New World and are chiefly Neotropical in distribution, being one of the most characteristic groups of Tropical American crane-flies. They have a rather uniform general appearance but are very conspicuous by the handsomely striped brown and yellow thoracic pleura and the dark brown stigma of the wings. Like some species in the subgenus *Lipophleps* and others, the antennae of the male sex have verticils of most unusual length.

List of Species.

- amazona* Alexander. — Amazonian Brazil, Ecuador, Peru.
- bifida* Alexander. — Mexico.
- gladiator* Alexander. — Panama.
- guayaquilensis* Alexander. — Ecuador.
- heteromera* Alexander. — Peru.

latistyla Alexander. — Mexico, British Honduras.

lemniscata Alexander. — Colombia, Venezuela, Brazil.

micracantha Alexander. — Ecuador.

micromera Alexander. — Southeastern Brazil.

(naiguatana Alexander, see *lemniscata*)

peracuta Alexander. — Mexico.

peracuta conifera Alexander. — Costa Rica, Panama.

pleuralis (Williston). — Southeastern United States, through Antilles to Peru, southeastern Brazil.

spinistyla Alexander. — Mexico, Brazil.

Neolipophleps, subgen. n.

Characters as in *Lipophleps*, differing especially in the structure of the male hypopygium. Wings with cell M_2 open by atrophy of basal section of vein M_3 , closed in *condensa*; anterior arcus broken. Male hypopygium with the dististyles, or profound branches of the same, three or even four in number, all terminal in position; intermediate style longest, appearing as a blackened spine or arm of various forms; innermost style fleshy or provided with a blackened spine; outermost style in cases lacking, usually present as a very slender spine, in cases this stouter. Phallosome usually consisting of a bilobed cushion and very weak and inconspicuous sclerotized points, including the aedeagus.

Type of subgenus: *Gonomyia* (*Neolipophleps*) *cinerea* (Doane).

As in the case of *Paralipophleps*, the distribution of the members of the present subgenus is solely American and chiefly Tropical. A very few species are Nearctic, including besides the subgenotype, *cinerea* (Doane) of the western United States, also *alexanderi* (Johnson) of the eastern United States. As in the case of *Paralipophleps*, members of this group are common and are eminently characteristic of the smaller crane-flies of Tropical America. The different species have the legs conspicuously patterned with white and are noteworthy in that the fore legs are differently colored from the remaining pairs. Similarly the costal border of the wings is usually broadly whitened and very conspicuous.

List of Species.

acuminata Alexander. — Ecuador, Peru, Argentina.

aequidens Alexander. — Mexico, Costa Rica.

aequispinosa Alexander. — Paraguay.

condensa Alexander. — Southeastern Brazil.

extenuata Alexander. — Southeastern Brazil.

falcifer Alexander. — Peru.

- glabrispina* Alexander. — Argentina.
helophila Alexander. — Southwestern United States, through Mexico
 and Central America to Peru.
machaeria Alexander. — Peru.
monacantha Alexander. — Puerto Rico.
monacantha platymera Alexander. — Cuba.
neofalcifer Alexander. — Venezuela.
rastriformis Alexander. — Mexico.
schadeana Alexander. — Brazil, Paraguay.
strigilis Alexander. — Mexico.
subfalcifer Alexander. — Paraguay.
trispinosa Alexander. — Argentina.

Aphrophila Edwards

Gnophomyia (*Aphrophila*) Edwards; Trans. New Zealand Inst., 54: 297; 1923.

There are eight described species in New Zealand and nearly as many more in Chile. In their general habits, the adult flies are very like the net-winged midges, *Blepharoceridae*, with which they are sometimes associated in nature. The adults are found close to the margins of mountain streams, often resting on the faces of boulders that are wet with spray, whence the generic name. This generic group, together with the primitive *Blepharocerid* genus *Edwardsina* Alexander, provides unusually strong evidence of a former Antarctic landbridge interconnecting Australia, New Zealand and southern South America. The venation of *carbonaria* is shown (Fig. 30).

List of Species.

- aurantiaca* Alexander. — Chile.
carbonaria Alexander. — Chile.
chilena Alexander. — Chile.
coronata Alexander. — Chile.
multidentata Alexander. — Chile.
viridinervis Alexander. — Chile.

The insufficiently known *Limnophila* ? *pallens* Philippi may well be a species of *Aphrophila* but will probably remain unrecognized unless the type material can be re-located.

Lipsothrix Loew

Lipsothrix Loew; Besch. Eur. Dipt., 3: 69; 1873.

Electrolabis Alexander; Crane-flies of the Baltic Amber, Bernstein-Forschungen, Heft 2: 58, figs. 68, 70; 1931.

A relatively small and exceptionally distinct genus, the majority of the species being Holarctic in distribution, with a marked concentration of forms in the Himalayan area. A single

species occurs in Tropical America, *Lipsothrix neotropica* Alexander, of northern Panama (Fig. 31). This is the most southerly representative in the New World, there being three others in western North America and one further species in the eastern Nearctic Region.

The strict position in tribes of this genus remains much in question. There appear to be features both of venation and structure of the male hypopygium that point strongly to the genus *Protohelius* Alexander (Philippine Journ. Sci., 35: 466-467, figs. 5, 18; 1928) which is considered to be Limoniine and will be discussed in Part VIII of the present series of papers.

The immature stages of *Lipsothrix sylvia* (Alexander), of eastern North America were discovered in 1946 by Professor James Speed Rogers, Director of the Museum of Zoology of the University of Michigan. Through the most noteworthy efforts and studies of Professor Rogers on the biology and ecology of the Tipulidae our knowledge of the immature stages of this family, as regards the genera of Eastern North America, is virtually complete, with scarcely any important gaps remaining.

Contribuição ao Conhecimento de *Charadrella malacophaga* Lopes, 1938 (Muscidae, Diptera).

Por Dalcy de Oliveira Albuquerque, Museu Nacional,
Rio de Janeiro, D. F.

(Com 35 figuras no texto)

O gênero *Charadrella* van der Wulp, 1896, contém 2 espécies. Uma, *macrosoma* van der Wulp, 1896, ocorre ao Norte de Yucatan (México) e na Baía (Brasil); outra, *Charadrella malacophaga* Lopes, 1938, que ora estudamos, ocorre no Rio de Janeiro, Distrito Federal.

Não possuímos material de *macrosoma*, porém fizemos uma diferenciação das espécies baseada em descrições e figuras de material típico. Agradecemos ao Prof. amigo Dr. Hugo de Souza Lopes o material e auxílio, que tornaram possível a realização deste trabalho. A Moacyr Leão, fotógrafo do Museu Nacional, devemos as fotografias que se encontram no texto.

Charadrella malacophaga Lopes, 1938.

Percorrendo as matas que cobrem o morro do Grajaú, no Rio de Janeiro, vê-se grande número de conchas de moluscos (*Gastropoda*), principalmente *Thaumastus taunaysi* (Fer.). Essa ocorrência é devida às atividades de *Charadrella malacophaga* Lopes, 1938, que, depositando suas larvas nos moluscos, ocasiona-lhes a morte. Apanhamos algumas conchas infestadas e levamo-las para o laboratório, colocando-as em cristalizadores contendo terra úmida, com o cuidado de não a deixar secar. Obtivemos, 29 dias após, 2 exemplares machos de *Charadrella*.

Ao cadáver de molusco vitimado por *Charadrella malacophaga* vêm ter larvas de várias espécies de famílias diferentes. Na Gávea e Corcovado, de onde examinamos material, deve ocorrer fato idêntico. Durante os dias úmidos tornam-se mais ativas. Apesar da amplitude do parasitismo, não é fácil sua captura e as fêmeas são mais raras. São encontradas, na maioria das vezes, pousadas em troncos de árvores próximo aos lugares de sua atividade, ou voando dentro da mata sob vegetação arbustiva. Além de *Strophocheilus taunaysi* (fig. 1), encontramos conchas de *Streptaxis* sp. (fig. 2) igualmente sacrificados.

M a c h o : cor geral amarela com o dorso escuro. Comprimento: 9 a 13 mm. Cabeça com a frente bastante saliente (fig. 5), amarela esbranquiçada, fronte castanha-escura, com uma faixa triangular alongada clara, que partindo do triângulo ocelar vai

até ao nível do 3.º par de cerdas frontais. Fronte a altura do ocelo anterior com cerca de 3,5 vezes da largura da cabeça. Triângulo ocelar à altura do ocelo anterior com 3,5 vezes da largura da fronte. Um par de grandes cerdas ocelares divergentes, inserindo-se superiormente ao ocelo anterior, havendo ainda no triângulo ocelar muitos pêlos finos. Do triângulo ocelar partem séries de pêlos que vão até as cerdas post-verticais, havendo exemplares em que esses pêlos vão além das cerdas post-verticais. As verticais externas são aproximadamente o dobro do comprimento das demais cerdas post-oculares, com exceção dos primeiros pares superiores que são mais desenvolvidos. Olhos afastados com finos e esparsos pêlos amarelados. Parte posterior da cabeça pilosa. Cerdas frontais de 9 a 10 pares, de comprimentos variados, com alguns cruzados; o 2.º par inferior é sempre o maior de todos. Parafrontália pubescente, encontrando-se paralela à fila de cerdas frontais, uma série de pêlos curtos e fortes. Ao nível dos 3.º e 4.º pares de cerdas frontais, existe externamente uma fila de pêlos curtos. Antenas castanhas com reflexo acinzentado. O 3.º artigo é 4,2 vezes maior que a soma dos 2 primeiros. Arista plumosa, com as plumas dorsais indo até ao ápice e as ventrais atingindo a altura das 3 últimas plumas dorsais. As plumas das faces ventrais e dorsais são o dobro do comprimento das da face interna da arista. Antena inserindo-se acima da metade dos olhos. Vibrissas fortes, havendo 3 cerdas vibrissais e pêlos menores. Fossas antenais profundas, com as margens pilosas em seus 2/3 basais. No ângulo inferior da margem anterior dos olhos, existe uma mancha castanha-escura. Faciália pilosa, parafaciália polinosa, com reflexo cinzento-claro. Palpos amarelos, alargados no ápice, deprimidos lateralmente, com pêlos longos e escuros nos bordos. Proboscida amarela, labelos da mesma cor, havendo ventralmente entre as expansões labelais, 2 pêlos maiores e escuros. Perfil facial e oral fazendo ângulo reto.

Tórax: lateralmente amarelo (com pleuras ligeiramente escuras), até pouco além das margens dorsais. As suturas torácicas dorsais são amareladas. Dorsalmente castanho-escuro com 3 faixas claras e entre elas os espaços se apresentam polinosos prateados. 3+3 cerdas dorsocentrals, espaçadas irregularmente. Acrosticais peliformes, não diferenciadas. Espiráculo metatorácico menor que a cabeça do balancim, 2 pares de cerdas pré-intraalares, 2 pares intraalares, 3 pares supraalares, sendo a mediana mais desenvolvida, 2 pares intra-postalares, 2 pares postescutelares. Escutelo com a mesma cor da parte anterior do tórax, com uma

faixa mediana amarela, apresentando 2 pares de cerdas discais, 1 par apical, 1 par lateral marginal, e 1 préapical. O par lateral marginal é mais ou menos do mesmo comprimento e robustez do apical, que é cruzado. Úmero com 4 pares de cerdas, 2 pares notopleurais, 5 a 6 mesopleurais, encontrando-se ainda na mesopleura numerosos pêlos fortes; esternopleurais 2:1. Pteropleura



Fig. 1. Concha de *Thaumastus taunaysi* (Fer.), com pupário de *Ch. malacophaga*. — Fig. 2. Concha de *Streptaxis spec.*, com pupário de *Ch. malacophaga*. — Fig. 3. Asa de *Ch. malacophaga*. — Fig. 4. Asa de *Ch. macrosoma*, segundo Van Wulp, 1896.

com abundantes pêlos longos e finos. Hipopleura de cor castanha-escura; 2 pares de cerdas mesopleuroespiraculares longas, curvadas superiormente, atingindo mais ou menos a altura superior do estigma. 1 par de cerdas própleurais.

Calípteros: o superior é cerca de 2,5 menor que o inferior, têm cor cinzenta-escura, com bordo mais pigmentado. O inferior é amarelo.

Balancim: Amarelo, frequentemente com a cabeça escura.

Asas (fig. 3): comprimento 10 mm. Amarelas com a margem superior escurecida até a metade da célula submarginal. Células anal e 1.^a basal parcialmente escurecidas. Nervura R_{4-5} na parte mediana curvada para cima. A nervura costal vai pouco além da R_{4-5} .

Pernas: castanhas-escuras com partes amareladas.

Perna anterior (fig. 6): Coxa com a face anterior dorsal apresentando 2 filas de cerdas, a partir da metade basal e superiormente com 1 fila menor. Face posterior com uma fila de cerdas longas, na linha de inserção do trocanter. Face dorsal nua. Trocanter com pêlos mais ou menos desenvolvidos. Fêmur com a face posterior pilosa, face anterior com 2 séries de cerdas marginais superiores e inferiores bastante fortes. Face dorsal com séries de cerdas fortes. As outras faces pubescentes. Tibia pilosa em todas as faces, notadamente na ventral, havendo nas faces anterior, ventral e posterior uma cerda apical. Tarsos intensamente pilosos, com cerdas apicais; o último segmento tarsal é mais claro. Pulvilos desenvolvidos e amarelos. Unhas claras com ápice escuro.

Perna média (fig. 7): Coxã apresentando a face posterior com cerca de 12 cerdas bem desenvolvidas, face anterior com uma fila de cerdas ao nível da inserção do trocânter. Trocânter piloso com algumas cerdas paralelas à articulação do fêmur. Face anterior coberta de pêlos, havendo medianamente alguns maiores e com 2 cerdas pré-apicais dispostas paralelamente. Face anterior com uma série de cerdas, superiormente espaçadas, estreitando-se depois. As outras faces pilosas. Tibia com a face anterior longamente pubescente, apresentando 2 cerdas, 1 mediana e outra sub-mediana, sendo esta ligeiramente maior. Face posterior pilosa, face anterior ventral pubescente com 2 cerdas apicais, sendo 1 bem longa. Tarsos semelhantes aos anteriores.

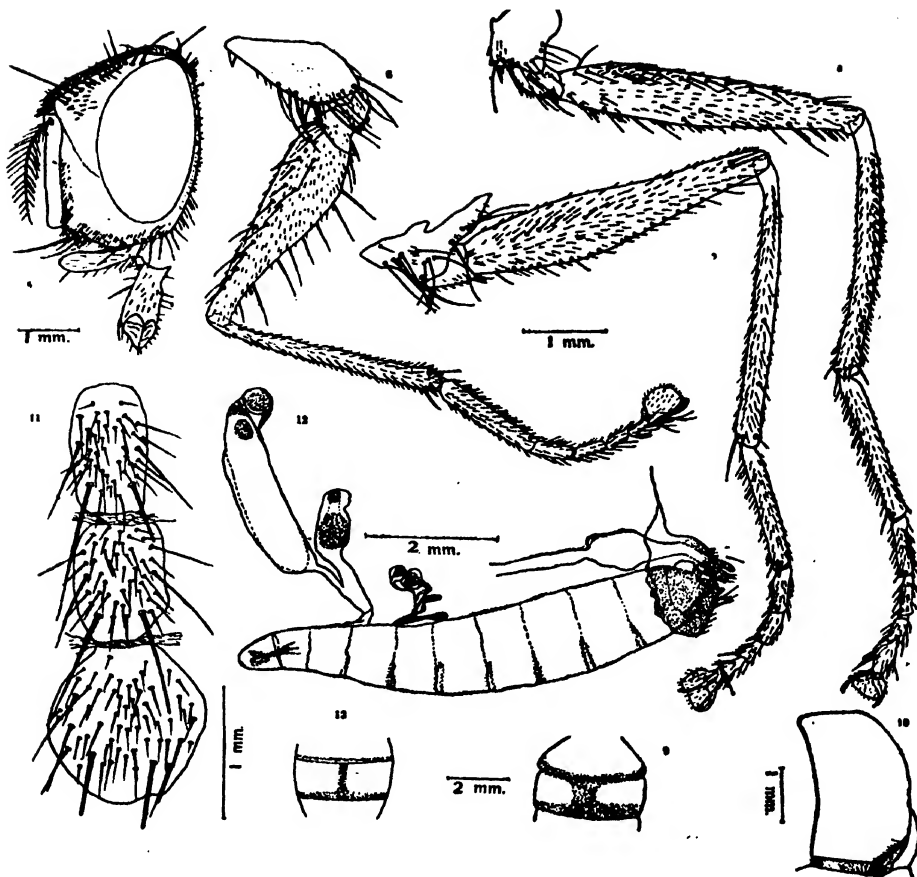
Perna posterior (fig. 8): coxa com a face anterior apresentando 1 série de cerdas inferiores, junto à linha de inserção do trocânter, e existem, espalhadas pela superfície da face, outras cerdas. Faces posterior e dorsal nuas. Face ventral com alguns pêlos escuros. Trocânter com a face anterior apresentando numerosas cerdas e pêlos, faces ventral, dorsal e posterior pilosas e com algumas cerdas. Face anterior dorsal do fêmur com 1 série de cerdas grandes, basalmente acompanhada por outra. Face ventral com 1 cerda isolada, seguindo 1 grande espaço, para continuar numa série com pequenos espaços, sendo as 2 últimas bastante longas. Face anterior pilosa. Tibia ligeiramente curva. Faces posterior dorsal e posterior ventral, com cerrada pubescência. Face anterior pilosa com 2 cerdas apicais, face ventral pubescente com 1 a 3 cerdas curtas, 1 mediana, 1 sub-mediana e outra apical. Face anterior dorsal com 1 série de cerdas a partir do meio até o ápice. Face anterior ventral com 1 cerda sub-

mediana, as vezes com 2. Tarsos semelhantes aos dos pares anteriores.

Abdomen: 1.º segmento (fig. 9) claro, com a margem apical escurecida e com pubescência abundante. 2.º segmento com 1 faixa central escura, estreita e o terço inferior transversalmente escurecido. Nos bordos do segmento nota-se 1 faixa estreita coberta de fina pubescência branca, com reflexo prateado. Os restantes segmentos são pretos-brilhantes, com cerdas apicais marginais. O esternito do 1.º segmento é amarelo-pálido com alguns pêlos finos. Os outros esternitos são retanguloides, pilosos com cerdas marginais laterais a apicais longas.

Genitália: 1.º segmento (fig. 14), com cerca de 36 cerdas de cada lado, sendo as superiores bastante alongadas e fortes. Forceps superiores falciformes, com a base truncada e coberta de pêlos longos, vistos lateralmente (fig. 15), convexos com a base truncada e bem evidente. O 1.º segmento genital é bem convexo em vista lateral. Forceps inferiores longos (fig. 19), recurvados internamente, bem quitinizados e com pêlos que se distribuem pelos 2/3 basais do esclerito. Forceps interiores vistos anteriormente (fig. 20), envolvem a base do pênis, têm os bordos quitinizados, rugosos, onde se inserem muitos pêlos pequenos; lateralmente, seus contornos superiores apresentam pontas (fig. 21) e os inferiores são arredondados. Têm inferiormente 1 parte que adere ao pênis pelo apodema, bastante flexível e que pode ser deslocada para cima (fig. 22), permitindo visão detalhada do conjunto. Pênis longo, curvo (fig. 23), com o ápice afinado e dirigido para fora; parte do pênis é visível fora do hipopígio. O apodema do pênis é paralelo à metade inferior do pênis, é 1 peça simples, constando de 1 prolongamento (fig. 24), com a extremidade mais larga. Encontram-se no pênis vestígios do espinho titilatório, onde vêm ter fibras musculares. O ducto ejaculatório pode ser visto por transparência. Frontalmente o pênis tem a extremidade apical da 1.ª porção alargada, o que é visível também lateralmente. O 5.º esternito (fig. 16) é cordiforme, apresentando nos ângulos superiores 2 projeções bastante quitinizadas, recurvadas internamente, com 1 fenda mediana a partir da qual há 1 alargamento para a base. Essa parte é uma prega do esclerito.

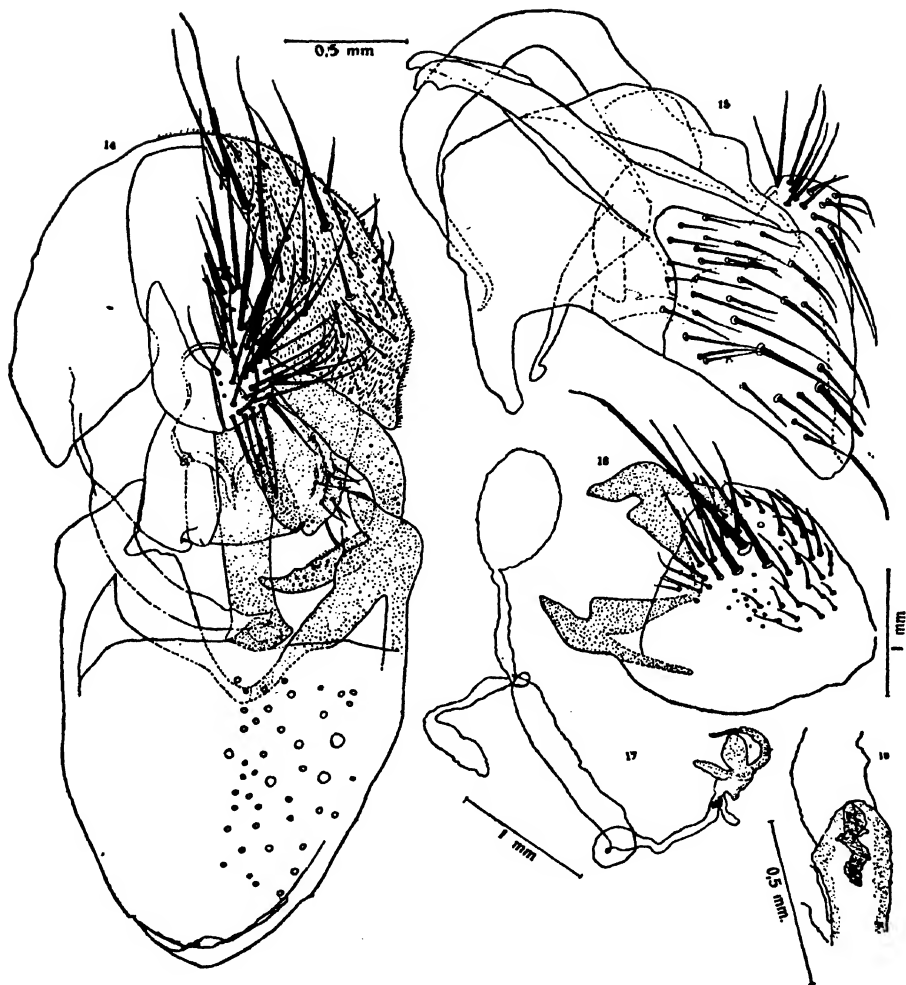
Aparelho genital: testículos piriformes (fig. 17), (na figura só há 1 completo), volumosos, com 2 canais eferentes mais ou menos curtos em relação ao canal deferente, que é bastante largo. Imediatamente abaixo da junção dos canais eferentes, o canal



Charadrella malacophaga. — Fig. 5. Cabeça do macho, perfil. — Fig. 6. Perna anterior do macho. — Fig. 7. Perna média do macho. — Fig. 8. Perna posterior do macho. — Fig. 9. 1º e 2º tergito do abdomen do macho. — Fig. 10. Base do abdomen da fêmea, vista lateral. — Fig. 11. Esternitos abdominais da fêmea, dos segmentos II-IV. — Fig. 12. Aparelho genital da fêmea. — *Ch. macrosoma*. Fig. 13. 1º e 2º tergito abdominal.

deferente faz uma espira, para depois sofrer um alargamento, descrevendo outra espira; volta então a mesma largura dos canais eferentes. Próximo ao pênis vê-se 1 envaginamento do canal deferente (fig. 18), com paredes mais espessas, encerrando 1 apodema ejaculatório; sinuoso, de contorno irregular e fortemente quitinizado.

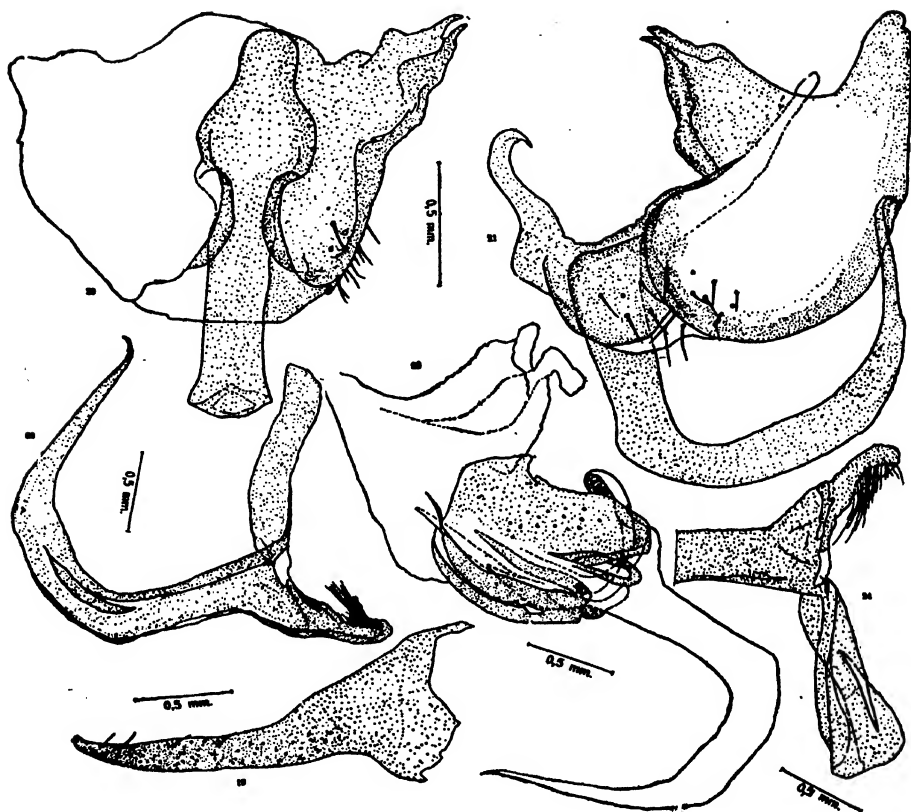
Fêmea: comprimento 10 a 13 mm. Aspecto geral semelhante ao do macho. Lateralmente amarelo-claro com menor alternância de castanho-escuro nas pleuras. As coxas e os fêmures são uniformemente amarelos, tíbias e tarsos castanhos-claros. O 1.º esternito visto de lado é falciforme, com pêlos finos nos bor-



Charadrella malacophaga, macho. Fig. 14. Genitália, vista ventral. — Fig. 15. Genitália, vista lateral. — Fig. 16. 5º esternito. — Fig. 17. Aparelho genital. — Fig. 18. Canal deferente.

dos e superfície; o 2.º é retânguloide (fig. 11), o 3.º semelhante ao 2.º, mas um pouco alargado e o 4.º é arredondado. Todos os esternitos são pilosos abundantemente, com cerdas longas nas margens e ápices.

Aparelho genital: 2 ovários (fig. 12), que se continuam por 2 ovidutos curtos, que vão ter a 1 oviduto ímpar, mais longo que os pares e ligeiramente mais longo. Encontramos nos ovários, oócitos, havendo-os de vários tamanhos. Há no útero do exemplar, 1 larva com desenvolvimento completo. Próximo ao desembocamento do oviduto ímpar do útero, encontra-se 1 par de

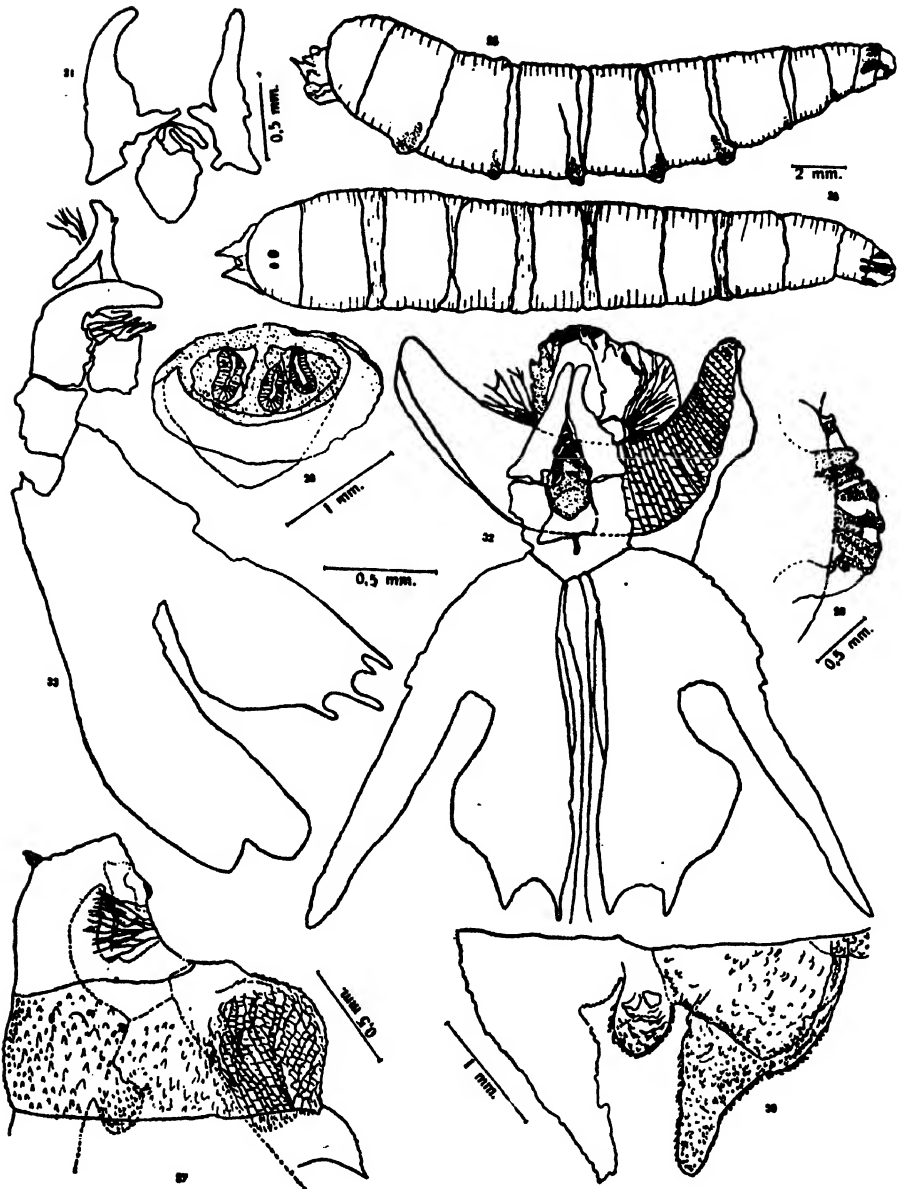


Charadrella malacophaga, macho. — Fig. 19. Forceps inferior. — Fig. 20. Forceps interiores e pênis, vista anterior. — Fig. 21. Forceps interiores e pênis, vista lateral. — Fig. 22. Forceps interiores e pênis. — Fig. 23. Pênis, vista lateral. — Fig. 24. Apodema do pênis.

glândulas acessórias, alongadas, com a extremidade livre captada. Junto a estas, vem ter as espermatecas, em número de 3, sendo 2 contidas em um mesmo envoltório tegumentar e outra separada, e envolvida semelhantemente às outras. Os canais das espermatecas são longos e contidos em envoltórios.

Larva em 3.º estágio: comprimento 22 mm (figs. 25 e 26). Branca, opaca, as vezes ligeiramente esverdeada, muito ativa, reagindo fortemente quando retirada do hospedador.

Pseudocéfalo (fig. 27): membranoso, com a parte ventral escurecida, de onde partem os cordões quitinosos do átrium, que vão ter à parte anterior do esclerito labial. As antenas são pequenas, situadas dorsalmente. Lateralmente ao átrium encontram-se os palpos, que são pequenos. Os cordões quitinosos vistos de



Charadrella malacophaga. — Fig. 25. Larva do 3º estágio, vista lateral. — Fig. 26. Larva do 3º estágio, vista dorsal. — Fig. 27. Extremidade anterior. — Fig. 28. Estigmas anteriores. — Fig. 29. Estigma posterior. — Fig. 30. Prolongamentos caudais. — Fig. 31. Ganchos bucais: esclerito labial. — Fig. 32. Ganchos bucais, aspecto total. — Fig. 33. Ganchos bucais, aspecto total, vista lateral.

frente, têm as extremidades ligadas a membranas duras e ligeiramente escurecidas.

Tórax: 1.º segmento fracamente escurecido, circundado por um esclerito de formação complicada, apresentando espinhos e estriações. Esse esclerito é bastante quitinizado. Visto de frente é aliforme, com bordos denteados. Os estigmas anteriores (fig. 28), situados lateral e superiormente ao pseudocéfalo, são compostos de mais ou menos 13 tubos traqueais, visíveis através do tegumento envolvente, que apresenta alguns espinhos tegumentares. Os outros segmentos apresentam ventralmente uma calosidade tegumentar algo escura, com papilas rígidas relacionadas com a locomoção da larva.

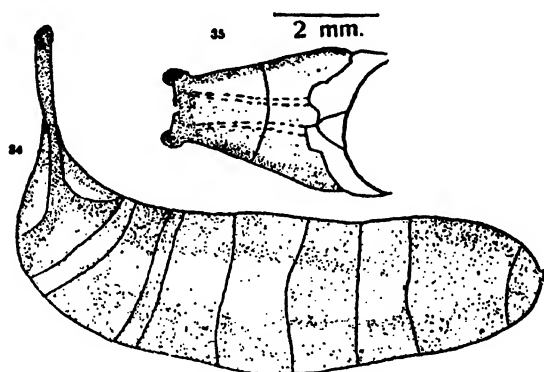
Abdomen: segmentos semelhantes entre si, idênticos ao último torácico, sendo porém mais desenvolvida a calosidade ventral. Apenas o último segmento se diferencia, apresentando os estigmas posteriores e uns prolongamentos caudais. Os estigmas posteriores (fig. 29) têm 3 aberturas sinuosas, com placa estigmática muito quitinizada. Os prolongamentos caudais são dorsais, ventrais e 1 mediano. Em todos os prolongamentos encontram-se espinhos tegumentares (fig. 30).

Ganchos bucais: labial, esclerito par, divergentes, vistos frontalmente (figs. 31 e 32) e lateralmente (fig. 33) têm a base volumosa, o ápice curvo e afinado. Vão ter ao labial faixas quitinosas do átrium. Dentado, esclerito ímpar, quadranguloide e ligado ao labial. O anel quitinoso ventral é irregular, pequeno, visto de frente e de lado. O infrahipostomal visto de frente é semelhante a um *H*, com os ramos superiores maiores. Lateralmente tem forma semelhante ao dentado na mesma visão. Faringeal grande, com o ramo inferior dilatado e com alguns prolongamentos pequenos. O dorsofaringeal é bastante desenvolvido e ligado intimamente ao faringeal.

Pupário (fig. 34): marron-escuro, curvo, com a parte anterior achatada dorsoventralmente, em cujas extremidades apicais laterais ficam os estigmas (fig. 35). É de constituição frágil, quebrando-se com facilidade. Aderem a qualquer parte da superfície interna da concha do hospedador, tendo sempre os estigmas em plano superior, que os salva de possíveis penetrações d'água.

Material estudado: holótipo macho, cultura n.º 226, Grajaú, Rio de Janeiro, 9-9-37, col. H. S. Lopes; paratipo macho, cult. n.º 224, Grajaú, Rio de Janeiro, col. H. S. Lopes; parátipo ma-

cho n.º 9308, Grajaú, Rio de Janeiro, 22-9-1937, col. H. S. Lopes; parátipo macho, Corcovado, Rio de Janeiro, 4-1932, col. Lauro Travassos; parátipo macho, Grajaú, Rio de Janeiro, 29-2-1938, col. H. S. L., alótipo fêmea, n.º 223, Grajaú, Rio de Janeiro, col. H. S. Lopes; alótipo fêmea, n.º 230, Grajaú, Rio de Janeiro, col. H. S. Lopes; alótipo fêmea, cult. n.º 229, Grajaú, Rio de Janeiro, col. H. S. Lopes; parátipo n.º 228, Grajaú, Rio de Janeiro, col. H. S. Lopes; fêmea sem n.º, Grajaú, Rio de Janeiro, 28-7-1941, col. Lopes e Oliveira, 4 machos sem n.º, Grajaú, Rio de Janeiro, 31-8-1941, col. H. S. Lopes, macho sem n.º, Grajaú, Rio de Janeiro, col. Lopes e Oliveira, 29-7-1931. (Todos esses exemplares pertencem à coleção do Instituto Osvaldo Cruz).



Charadrella malacophaga, pupário. — Fig. 34. Aspecto total. — Fig. 35. Estigmas.

Exemplar n.º 39, Gávea, Rio de Janeiro, 9-10-1931, col. E. May; fêmea n.º 40, Gávea, Rio de Janeiro, 9-10-1931, col. E. May; 3 machos nos. 34, 35 e 36, Grajaú, Rio de Janeiro, col. H. S. Lopes; 2 machos nos. 37 e 38, Grajaú, Rio de Janeiro, 15-4-1945, col. D. Albuquerque.

Distribuição geográfica do gênero neotropical.

Comparando as figuras de *Charadrella malacophaga* Lopes, 1937, com as de *Charadrella macrosoma* van der Wulp, 1896, assinalamos as seguintes diferenças: em *C. macrosoma* a vita frontal é fortemente excavada, em *malacophaga* a é levemente. O contorno do olho em *macrosoma* é anguloso, em *malacophaga* o é regular (em vistas laterais). 3+2 cerdas dorsocentrais em *macrosoma*, 3+3 em *malacophaga* e as umerais variam de 4 para 5. Em *macrosoma* a nervura R_{4-5} (fig. 3) é fortemente dirigida para cima e em *malacophaga* (fig. 4) a é suavemente. Na 1ª, toda a margem anterior da asa, incluindo a 1ª célula basal, metade das células submarginais, parte inferior do ápice de R_{4-5} , ápice de M_1 , células anais e margem inferior de M_3 apresentam-se escuros; enquanto que em *malacophaga* apenas a margem superior até a metade da célula submarginal,

parte da célula anal e a 3ª célula posterior são enegrecidas. As faixas escuras transversais e horizontais dos primeiros segmentos abdominais de *macrosoma* (fig. 13) são mais estreitas que em *malacophaga* (fig. 9).

Summary

The autor studies the morphology of the larva, puparium and adult of *Charadrella malacophaga* Lopes, gives notes on the biology of this species, and also stresses the differential characters which separate this species from *Charadrella macrosoma* Wulp.

Bibliografia

- Aldrich, J. M., 1918, Notes on the Diptera. — *Psyche*, 25 (3): 30-35.
- Curran, C. H., 1934, The Families and Genera of North American Diptera: 395-396, figs. 39 and 53. New York, N. Y.
- Lopes, H. S., 1938, Sur une Espèce du Genre *Charadrella* Wulp (Diptera Anthomyidae). — *Trouances de la Société de Biologie*. Paris, 128: 926-928, figs. 1, 2, e 3.
- Malloch, J. R., 1921, Notes on some of van der Wulp's Species of North American Anthomyidae (Diptera). — *Ent. News*, Philadelphia, 32 (2): 40-45.
- Séguy, E., 1937, *Genera Insectorum*, Bruxellas. Fasc. 205:314, pls. 4 e 7, figs. 3 e 8.
- Stein, P., 1918, Zur Weitern Kenntnis Aussereuropaeischer Anthomyiden. — *Ann. Musei Nat. Hung.*, vol. 16 (1): 232 e 233.
- Van der Wulp, F. M., 1896, *Biologia Centrali-Americana*. Vol. 11: 341. tab. 8, figs. 16, 16a e 16b.

Die Deckenelemente der Hispinae-Gruppen Chalepini und Uroplatini (Col. Chrysom.).

(108. Beitrag zur Kenntnis der Hispinae).

Von Erich Uhmann, (10b) Stollberg-Sa., Gartenstadt 197, V.

(Mit 13 Abbildungen)

Einteilung.

Einleitung.

- I. Teil: A) Deckenskulptur: Rippen und Reihen; I. und II. Typ; Zwischenformen im allgemeinen.
- B) Zwischenformen bei den Chalepini.
- C) Zwischenformen bei den Uroplatini.
- D) Die Stellung einiger Gattungen zu *Uroplata* und *Octhispa*.
- II. Teil: E) Decken- und Schulterzahn.
- F) Weiterentwicklung der Schultererhabenheit.
- G) Die Begrenzung der Schulter-Vorderfläche.
- H) Die Entwicklung der Schulter bei den Chalepini.
- I) Ein anderes Entwicklungsgesetz bei *Stethispa*.
- K) Die Entwicklung der Schulter bei den Uroplatini.
 - 1) Typ I und die ihm nahestehenden Zwischenformen.
 - 2) Typ II und die ihm nahestehenden Zwischenformen.
 - a) Zwischenformen von Typ II bei *Octhispa*.
 - b) Die Schultererhabenheit der *Elongata*-Gruppe.
 - c) Die Schultererhabenheit der *Elevata*-Gruppe.
 - d) Die Schultererhabenheit der *Spitzl*-Gruppe.

Schlussbetrachtung.

Zusammenfassung.

Beschreibung von *Ballosus indutus* n. sp.

Meine hier erwachten Beitrage.

21. Deutsch. Ent. Zeitsch. Berlin 1930 (31).
56. Fol. Zool. Hydrobiol. 8, Riga, 1935.
61. Festschr. Strand, 1, Riga, 1936.
68. Festschr. Strand, 3, Riga, 1937.
71. Proc. Zool. Soc. London, B, 7, 1938.
72. Ann. Natur. Hist. (11) 1, London, 1938.
77. Festschr. Strand, 5, Riga, 1939.
89. Arb. morph. taxon. Ent. 7, Berlin-Dahlem, 1940.
102. Fol. Zool. Hydrobiol. 12, Riga, 1943.

Die hier erwachten Gattungen und Untergattungen.

Acanthodes Baly
Acritispa Uhmann
Anisostena Weise
Anoplitis Chapuis
Baliosus Weise
Bothrispa Uhmann
Carinispa Uhmann
Chalepus Thunberg
Charistena Baly
Clinocarhispa Uhmann
Codiohispa Maulik (Subg.)
Corynispa Uhmann
Euprionota Chapuis (Subg.)
Heterispa Chapuis
Microhopala Baly
Octhispa Chapuis

Octotoma Suffrian
Octuroplata Uhmann
Oxychalepus Uhmann
Oxyroplata Uhmann
Pentispa Chapuis
Physocoryna Chapuis
Probaenia Weise
Stenopodius Horn
Sternocthispa Uhmann
Sternoplispa Uhmann
Sternostena Weise
Stethispa Baly
Temnochalepus Uhmann
Temnocthispa Uhmann
Uroplata Chapuis
Xenochalepus Weise

Anzahl der beschriebenen und bestehenden Gattungen bei den Chalepini 22, bei den Uroplatini 30.

Einleitung.

Die Gruppen der Chalepini und Uroplatini weisen viele gemeinschaftliche Zuege auf, sodass die Meinung auftauchen kann, dass beide Gruppen in eine zu vereinigen seien. Selbst das einzige Unterscheidungsmerkmal, die mehr oder weniger verschmolzenen Endglieder der Fuehler, laesst eine scharfe Trennung beider Gruppen nicht zu; vergleiche *Sternoplispa* Uh. (89:115) und *Sternocthispa* Uh. (71:113). Zu den Chalepini stellt man alle Arten, deren Fuehler 9-11-gliedrig sind, und zu den Uroplatini die, deren Fuehler 3-8 Glieder haben.

Auf der Suche nach besseren Unterscheidungsmerkmalen habe ich die Deckenelemente studiert und gefunden, dass auch durch diese keine Trennung zu erreichen ist, da auch darin beide Gruppen gleiche Merkmale haben. Wir muessen zu der Ansicht kommen, dass beide Gruppen erst spaet sich getrennt haben, bezw. noch in der Differenzierung begriffen sind hinsichtlich der "Zusatzreihen" oder "Zusatzpunkte". Beide Elemente stellen sich nach meinen Untersuchungen als Restreihen oder Restpunkte heraus; vergl. unten bei *Anoplitis fuscicornis* Ws. und *Clinocarisma sauveuri* Chap. chrom. *discrepans* Ws.

Es ist vollkommen klar, dass mit dieser Arbeit nur ein Teilergebnis erzielt werden kann, denn es ist doch eben nur *ein* Teil des Insektenkoerpers und auch nur *eine* Entwicklungsstufe, die von mir untersucht worden sind. Ausserdem ist die Zahl der bekannten Arten in den beiden Gruppen ausserordentlich gross und die der noch unbekannten wird nicht abzusehen sein. Von dieser ungeheuren Menge hat von mir nur ein winziger Bruchteil studiert werden koennen. Die individuellen Abweichungen koennten auch die Meinung aufkommen lassen, als ob das vorliegende Material viel zu gering sei, um sichere Ergebnisse zu zeitigen. Trotzdem glaube ich, dass meine Untersuchungen nicht nutzlos gewesen sind. Hoffentlich werden spaetere Forscher an umfangreichem Material meine Ergebnisse nachpruefen, berichtigen und neue Erkenntnisse erzielen koennen. Ich habe, wenn noetig, bei jeder Gattung die Anzahl der mir vorliegenden Arten und der untersuchten Stuecke in Klammern angegeben, entsprechend auch bei den Arten. Man soll daraus Schluesse auf die Brauchbarkeit und Sicherheit der Ergebnisse ziehen koennen.

In dieser Arbeit wird nicht von jeder Gattung und Art die jeweilige Bildung der zu besprechenden Elemente beschrieben.

Dies ist Aufgabe einer speziellen Betrachtung. Hier sollen nur die allgemeinen Richtlinien der Entwicklung der Deckenelemente aufgezeigt und nur die auffallendsten Erscheinungen ihrer Abwandlung geschildert werden.

I. Teil.

A) Deckenskulptur: Rippen und Reihen.

Die erste, oberflaechliche Betrachtung lehrt, dass unter den Chalepini und Uroplatini 2 Haupttypen in der Anordnung der Rippen oder ihrer entsprechenden Zwischenraeume und der Punktreihen bestehen. Von diesen Elementen sollen unterschieden werden: intrahumerale, humerale und extrahumerale Elemente. Zu den intrahumeralen Elementen gehoeren noch der unmittelbar ans Schildchen stossenden Teil der Deckenbasis, die Skutellar- oder Schildchenreihe und der Skutellar- oder Schildchenraum. Diese Elemente bleiben in der Arbeit unberuecksichtigt.

I. Typ. — Xenochalepus, 57 (ueber 300). 10 regelmaessige Punktreihen und 4 Rippen oder deren Raeume dazu die rippenfoermige Naht (Abb. 1). Beiderseits einer jeden Rippe liegt eine Doppelreihe von Punkten. Von innen nach aussen folgen aufeinander: "Erstens intrahumerale Elemente, naemlich Naht; 1. Zwischenstreifen mit den Punktreihen 1 und 2; 1. Rippe; 2. Streifen mit den Reihen 3 und 4; 2. Rippe. Zweitens humerale Elemente, naemlich 3. Streifen mit den Reihen 5 und 6; 3. Rippe; 4. Streifen mit den Reihen 7 und 8; 4. Rippe. Drittens extrahumerale Elemente, naemlich 5. Streifen mit den Reihen 9 und 10; Seitenrand." Zwischen Naht und 1. Punktreihe liegt der Naht-Zwischenraum, zwischen 1. und 2. Punktreihe der I. Zwischenraum und so weiter; der X.Raum ist der Aussenrand (vgl. auch 102: 204). Die 4 Rippen entsprechen dem II., IV. und VIII.Raum. Sie sind oft nur als Raeume ausgebildet. Man muss also unterscheiden 4 Rippen, 5 Zwischenstreifen, 10 Punktreihen, 10 Zwischenraeume, die Naht und den Naht-Zwischenraum. Die Rippen sind, wie schon erwaeht, nicht immer entwickelt. Sie koennen alle oder nur einige, ganz oder teilweise, als Raeume ausgebildet sein. Reihe 9 und 10 sind zuweilen in der Mitte m. o. w. vereinigt oder wenigstens zusammengedraengt (vgl. 77:319).

II. Typ. — Charistena, 9 (23). 8 regelmaessige Punktreihen und 3 Rippen ausser der rippenfoermigen Naht (Abb. 2). Erstens intrahumerale Elemente: Naht; 1. Streifen mit den Reihen 1 und

2; 2. Streifen mit den Reihen 3 und 4; 2. Rippe. Zweitens humerale Elemente: 3./4. Streifen mit der Reihe 5, dazu Zwischenraum VI und Reihe 8; 4. Rippe, *die 3. Rippe ist unterdrueckt* oder nur als kurzer Rest vorhanden. Drittens extrahumerale Elemente: 5. Streifen mit den Reihen 9 und 10; Seitenrand. Hinsichtlich der Rippen und Raeume und der 9. und 10. Reihe gilt das an entsprechender Stelle des I. Typs Gesagte auch hier. Zwischen Naht und 1. Punktreihe liegt der Naht-Zwischenraum, zwischen 1. und 2. Punktreihe der I. Zwischenraum, usw. Geschwunden sind die Raeume V und VII und die Reihen 6 und 7. Die 3 Rippen entsprechen dem II., IV. und VIII. Raum (Abb. 3). Es sind also zu unterscheiden 3 Rippen (1., 2., 4.), 4 *Zwischenstreifen* (1., 2., 3./4., 5.), 8 Punktreihen (1. bis 5. und 8. bis 10.), 8 *Zwischenraeume* (I. bis IV., VI., VIII. bis X.). Die 1. Rippe liegt, wenn sie entwickelt ist, auf dem II. Raum, die 2. auf dem IV., die 4. auf dem VIII. Beim *Auszaehlen* der Rippen ist die entwickelte dritte Rippe stets als *vierte* in den Beschreibungen zu bezeichnen.

Die Zaehlung der Deckenelemente ist nicht etwa willkuerlich, sondern gruendet sich auf die Verhaeltnisse bei *Clinocarispa*, 6 Arten, 46 Stueck, abgekuerzt 6 (46). Bei dieser Gattung (ausser *C. hisbicarinata* Uh., 4 St. Guyana) und einzelnen Chromationen von *C. sauveuri* Chap. (3, Brasilien: Goyaz; Bahia) ist der II. Typ fast rein ausgebildet. Nur an der Schulterbeule selbst ist ein kurzes Basalstueck der 3. Rippe zu finden und beiderseits von ihr je eine kurze Punktreihe, die der 6. und 7. entsprechen. An der Schulter sind also alle Raeume vorhanden. An das kleine Basalstueck der 3. Rippe auf dem VI. Raum muss sich dann ein Zwischenraum anschliessen, der dem VI. des Typs I entspricht (Abb. 3).

Von den groesseren Gattungen der Chalepini gehoeren z. B. fast rein zu Typ I: *Xenochalepus*, 57 (ueber 300), *Stethispa*, 4 (11), *Baliosus*, 21 (ueber 100), Ausnahme *B. rubiginosus* Guér. (27 St. Brasilien); zu Typ II: *Charistena*, 4 (23), *Sternostena*, 5 (33), *Anisostena*, 7 (25), *A. prompta* Ws. (1, Argentinien; 3, Brasilien) mit Restpunkten zwischen der 5. und 8. Reihe hinter der Schulterbeule. Zwischenformen weisen auf *Chalepus*, 43 (ueber 400), *Anoplitis*, 17 (164) und andere.

Von den groesseren Gattungen der Uroplatini gehoeren z. B. fast rein zu Typ I: *Probaenia*, 20 (123) (Ausnahme *P. rubida* Chap. (1 Brasilien) und *P. clara* Ws. (1 Paraguay), *Heterispa*, 3 (153), *Stenopodius*, 1 (2), *Oxyroplata*, 3 (17); zu Typ II:

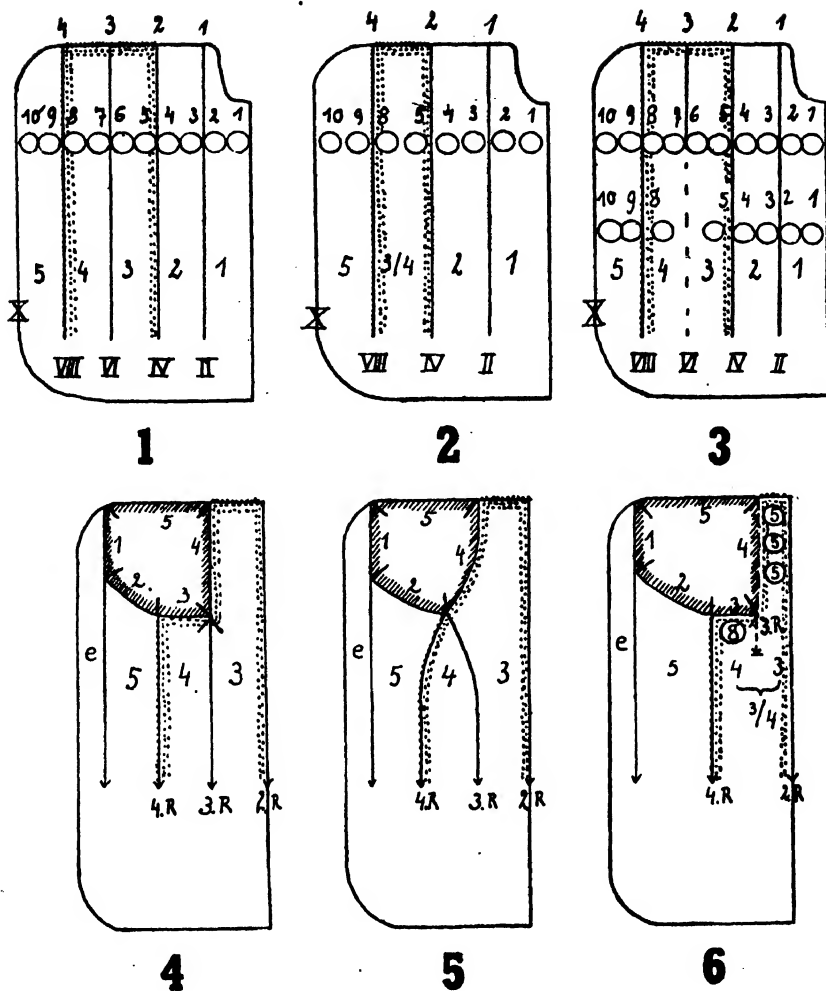


Abb. 1. Schematische Darstellung der Deckenelemente von Typ I. Die humeralen Streifen 3 und 4 sind durch Puenktchen umrandet. — Abb. 2. Ebenso von Typ II. — Abb. 3. Ebenso von einer Zwischenformen benachbart Typ II (*Clinocarisa*). — Abb. 4. Schematische Darstellung der Grenzen 1-5 der Vorderflaeche bei Typ I. Die Grenzen sind schraffiert und die zugehoerigen humeralen Elemente punktiert umrandet. Die Gestalt der Flaeche ist beliebig gewaehlt. e: Epipleuren, emporgeschlagen. 3, 4, 5: Zwischenraeume. 2.R.-4.R.: Rippen. Die 3. Rippe beginnt erst an der Grenze der Vorderflaeche. — Abb. 5. Dasselbe bei Typ I mit fehlender Grenze 3 durch Vereinigung der 3. und 4. Rippe. — Abb. 6. Dasselbe bei Typ II. Rest der 3. Rippe gestrichelt. Zwischenraum 3/4 mit den Reihen 5 und 8.

Pentispa s. str., 13 (78), *Microrhopala*, 9 (70). Zwischenformen erhalten *Octhispa*, 22 (160), *Octuroplata*, 4 (7), *Uroplata*, 36 (ueber 300).

Zwischenformen im allgemeinen. — Zwischen den beiden Typen I und II gibt es verschiedene Uebergaeage: "Zwischenformen". Es kann natuerlich nicht mit absoluter Sicherheit

entschieden werden, welcher Typ als urspruenglicher anzusehen ist. Man koennte auch zwei getrennte Entwicklungslinien vermuten. Bei der einen Linie wuerde es sich darum handeln, dass aus dem I. Typ die Zwischenformen durch Reduktion von Reihen und Rippen entstueenden, also muesste man von Resten von Rippen und Reihen sprechen. Bei der anderen Linie wuerden die Zwischenformen aus dem II. Typ durch Fortentwicklung hervorgegangen sein, demnach waere von Zusatzrippen und Zusatzreihen zu reden. Beide Moeglichkeiten halte ich fuer gegeben, doch duerfte man zurzeit kaum im Stande sein, etwas Sichereres auszusagen. Die folgenden Betrachtungen gehen von der Annahme aus, dass Typ I als urspruenglicher, in der Erbmasse verankerter, anzusehen ist.

B) Zwischenformen bei den Chalepini, Typ I/II.

1. *Art der Zwischenformen.* — Bei den meisten Arten von *Chalepus*, *Xenochalepus*, *Temnochalepus* und *Oxychalepus* hat man den Eindruck, als ob tatsaechlich 10 Reihen das Urspruengliche waeren. Bei einigen Arten von *Chalepus* laesst sich verfolgen, wie durch Schwinden der 3. Rippe und durch Zusammendraengen und Ineinanderschieben der Reihen 5-8. auf den humeralen Raeumen schliesslich die Rueckbildung auf 8 Reihen gegen die Deckenmitte vor sich geht, z. B. bei *Ch. bellulus* Baly (1 Mexiko, 4 Panama), *Ch. notula* Chap. (3 Bahia, usw.) (siehe auch Schluessel 61:624). Es ist schon dort auf die Schwierigkeit hingewiesen worden, bei manchen Arten zu entscheiden, ob 10 Reihen oder weniger in der Mitte zu zaehlen sind. Selbst individuelle Abweichungen sind zu beobachten.

2. *Art der Zwischenformen* (Abb. 3). — Auf der Schulter zaehlt man 10 oder 9, im Spitzenteil 8 Reihen. Hierher gehoeren die meisten Arten von *Clinocarisma* mit 10 Reihen an der Basis durch kurze Reste der 6. und 7. Reihe (6 Arten, 46 St.). *Anoplitis heringi* Uh. (13 St. Costa Rica) hat nur einen kurzen Rest der 6. Reihe auf der Schulter, also dort 9 Reihen.

3. *Art der Zwischenformen.* — Es sind vorhanden im Basalteile 8, im Spitzenteil 10 Reihen oder hier nur eine Restreihe oder nur einige Restpunkte. Hierher gehoeren *Agathispa dimidiata* Ol. (2. Haiti) und Arten von *Anoplitis*, z. B. *rosea* Weber mit Restpunkten auf Streifen 3/4 (5, USA) und *fuscicornis* Ws. (4 St. Bahia; S. Catharina). Weise schreibt (Verh. naturf. Ver. Bruenn, 48:128, 1909(10)) ueber *fuscicornis*: "Von diesen (Reihen) ist die 5. und 6. hinter der Mitte oft durch eine feine,

wenig deutliche, aus Koernchen zusammengesetzte Leiste getrennt". Vergleiche meine Feststellungen an den Typen (56:231), dass diese Koernchen Trennungswaende der einzelnen Restpunkte sind. Individuell kann der Streifen $3/4$ bei beiden Arten mit den normalen (d. h. bei der Rueckbildung uebriggebliebenen) Reihen 5 und 8 ausgestattet sein: *A. rosea* (3, USA) und *A. fuscicornis* (1, Bahia) (Abb. 3).

C) Zwischenformen bei den Uroplatini.

Die beiden grossen Gattungen *Uroplata* und *Octhispa* waren bisher Sammelgattungen (vgl. Baly, Ann. Nat. Hist., ser. 3, 14:335, 1864) fuer Arten mit 4 Rippen und 10 Reihen (*Uroplata*) und 3 Rippen mit 8 Reihen (*Octhispa*) und fuer deren Zwischenformen. In der Uebersicht ueber die Uroplatini (Gen. Ins. 125:42, 1911) hat Weise schon darauf hingewiesen, dass es Arten von *Octhispa* und *Acanthodes* gibt, bei denen sich zwischen die 5. und 6. (jetzt 8.) Reihe an der Basis und in der Deckenmitte einige ueberzaehlige (wir sagen Restpunkte) einschieben. Diese Zwischenformen haben das Einreihen und Erkennen der Arten oft recht schwer gemacht, und man half sich eben durch die Sammelgattungen. Es ist aber doch festzustellen, dass diese "Zusatzpunkte" nicht etwas Zufaelliges, sondern vielmehr Gesetzmassiges sind. Neben der scheinbaren Vermehrung der Punktreihen und Rippen bei *Octhispa* laeuft bei *Uroplata* eine mehr oder weniger deutlich eingeleitete, wirkliche Verminderung der Reihen und Rippen in der Deckenmitte einher, z. B. bei *Uroplata fulvopustulata* Baly (121, Costa Rica; 3, Brasilien: Bahia, S. Catharina; 1, Colombia), *U. atricornis* Pic (6, Argentinien), *U. jucunda* Chap. (2, Brasilien). Diese Verhaeltnisse habe ich erwaehnt fuer *Uroplata* in 68:451 ff. und fuer *Octhispa* in 77:317 ff. Das Ergebnis meiner Untersuchungen zeitigte eine Abspaltung neuer Gattungen, aber nicht etwa wegen der abweichenden Zahl von Reihen und Rippen allein, sondern es mussten andere, primaere Merkmale vorhanden sein, um die Aufstellung einer neuen Gattung zu rechtfertigen. Nach unserer Annahme des Urtyps I ist die Anlage zur Verminderung von Rippen und Reihen vielleicht allen Gattungen der Chalepini und Uroplatini eigentuemlich und in ihren Erbanlagen begruendet. Bei *Anoplitis* von den Chalepini habe ich, wie oben erwaehnt, feststellen koennen, dass bei *A. fuscicornis* Ws. und *rosea* Weber unter "normalerweise" mit "Zusatzpunkten" versehenem Material auch Stuecke mit regelmaessigen Punktreihen zu finden sind. Das Gleiche duerfte sich auch fuer Arten der

Uroplatini nachweisen lassen. Diese Regelmässigkeit wuerde also vollendete Rueckbildung bedeuten.

Octhispa in ihrer jetzigen neuen Begrenzung enthaelt neben meist 3-rippigen Arten immer noch Uebergangsformen, die hinten auf Raum $3/4$ zwischen der 5. und 8. Reihe einen oder mehrere Restpunkte haben, z. B. *O. caprea* Ws. (1, Paraguay) mit einer ganzen Restreihe, *O. concava* Baly (3, Brasilien: Goyaz; Bahia; 1, Guyana) mit einem Restpunkt bis zu einer kurzen Restreihe, *O. bondari* Uh. (3, Bahia; Rio de Janeiro) mit Restpunkten hinten und auf der Schulter.

Uroplata in ihrem von mir festgelegten Umfange umfasst zunaechst Arten mit 4 Rippen und 10 regelmaessigen Punktreihen. Bei vielen dieser Arten beginnt die 3. Rippe in der Mitte m. o. w. schwach und niedrig zu werden, z. B. *U. bipuncticollis* Baly (2, Brasilien: Goyaz; 1, Argentinien), *U. maculicollis* Ws. (1, Brasilien: Goyaz). Ausserdem gehoeren hierher viele Arten besonders aus der Untergattung *Codiohispa*, bei denen sich auch noch eine Rueckbildung des 3. und 4. Streifens anbahnt. Bei meinem Material der haeufigen *Uroplata fulvopustulata* Baly aus Costa Rica (ueber 100) kann man verfolgen, wie sich schrittweise die Rueckbildung der 3. Rippe vollzieht. Zuerst ist sie in der Deckenmitte einfach niedergedrueckt, ihr Raum ist immer gut zu sehen, er wird oft unregelmässig, bei manchen Stuecken fehlt dann diese Rippe in der Mitte ganz. Mit dem Schwinden der Rippe geht dort die Rueckbildung von Punktreihen einher. Es handelt sich um die 6. und 7. Reihe, von denen die 6. zuerst gegen die 5. und die 7. gegen die 8. gedraengt werden und schliesslich mit diesen verschmelzen, sodass dann in der Mitte nur noch 2 unregelmässige Reihen, die 5. und 8. gezaehlt werden koennen. Die Streifen 3 und 4 sind auf einen, den Streifen $3/4$, rueckgebildet. Also grosse individuelle Schwankungen.

Dasselbe kann man noch bei *U. coarctata* Ws. (*U. anonicola* Mlk.) (2, Bahia; 2, S. Catharina) und anderen beobachten. Bei *U. aeneicollis* Ws. sind alle Rippen nur wenig ausgebildet, die 3. ist noch staerker unterbrochen. Bei *U. fiebrigi* Spaeth (3, Brasilien: S. Catharina; 1, Argentinien) koennen alle Punktreihen regelmaessig und die 3. Rippe in der Mitte unterbrochen sein, aber individuell treten in der Mitte des 3. und auch des 4. Streifens Stoerungen in den Reihen ein, so bei Spaeth's Holotypus.

Eine andere Stufe der Rueckbildung auf dem 3. und 4. Streifen treffen wir z. B. bei *U. atricornis* Pic (*Probaenia*) (6, Argentinien), *U. jucunda* Chap. (*Probaenia*) (2, Brasilien) und

U. nigratarsis Ws. (8, Argentinien) an. Hier ist die 3. Rippe in der Mitte voellig geschwunden, auch ihr Zwischenraum laesst sich nicht mehr verfolgen, dort beginnen dann auch noch die Punkte der beiden Nachbarreihen ineinander zu greifen. Bei *U. atricornis* ist die Unregelmassigkeit noch am geringsten, sie steigert sich bei *U. nigratarsis* dahin, dass die 3. Rippe auch nach der Schulter zu wenig ausgepraegt bis undeutlich wird, die Doppelreihen der Punkte sind dort so gut wie einfach.

Aus diesen wenigen Beispielen ist ersichtlich, dass die Anschauung, die Ausbildung von 4 Rippen und 10 Punktreihen sei die urspruengliche, wohl zu Recht besteht, wenigstens fuer *Uroplata*. Diese Deckenelemente sind noch so plastisch, dass sie innerhalb einer Art, ja asymmetrisch bei einem einzigen Stueck, abaendern. Wir sagen also: Fuer *Uroplata* und Verwandten liegt eine Rueckbildung der Deckenelemente vor. Eine neue Entwicklung bahnt sich bei diesen ausserdem noch an: die der Unregelmassigkeit im Verlaufe der Rippen und Reihen, so bei den *Uroplata*-Arten *serrulata* Ws., *girardi* Pic, *rudis* Uh. und anderen (vgl. 68:458), und den Uroplatini-Gattungen *Physocoryna*, *Octotoma* usw. Bei den Chalepini ist Aehnliches mir nur von *Baliosus intricatus* Ws. bekannt geworden. Auf diese Bildungen der Rauhsulptur soll hier nicht eingegangen werden.

Fuer *Octhispa* kann beim Betrachten mancher Arten die andere Anschauung, dass die "Zusatzreihen" und "Zusatzpunkte" auf Vermehrung der Deckenelemente beruhen koennten, wohl aufkommen. Doch glaube ich, dass man in die *Octhispa*-Arten mit 3 Rippen und 8 regelmaessigen Reihen, also im Typ II, die Endglieder in der Rueckbildung dieser Deckenelemente zu sehen hat. Bei *Heptispa* geht diese Rueckentwicklung noch einen Schritt weiter, indem die vorletzte Reihe des Randstreifens bis auf ein kurzes Stueck unter der Schulter verschwindet.

D) Die Stellung einiger Gattungen zu *Uroplata* und *Octhispa*.

Probaenia, 20 (ueber 100), gehoert eng neben diejenigen *Uroplata*-Arten, bei denen die Rueckbildungen in dem 3. und 4. Streifen beginnen. *P. rubida* Chap. (1, Brasilien: Minas Gerais) und *clara* Ws. (1, Paraguay) haben ganz regelmaessige und vollstaendige Rippen und Reihen. *Sternoplispa*, 7 (20), hat fast bis auf einige wenige Punkte an der Schulterbeule, die ich als Reste der 6. und 7. Reihe deute, den regelmaessigen Verlauf der Elemente wie die *Octhispa*-Arten mit 3 Rippen und 8 Reihen. Bei *St. rotundata* Uh. (Brasilien, 3 S. Catharina, 2 S. Paulo).

fehlen diese Schulterpunkte ganz. *Pentispa* und *Microrhopala* gehoeren neben die Arten von *Octhispa* vom Typ II. *Bothrispa depressa* Chap. (4, Brasilien) steht zwischen den Zwischenformen von *Uroplata* und *Octhispa*. Sie hat einige Punkte auf der Schulter und einige unregelmässige und individuell verschiedene Restreihen auf Streifen $3/4$. *Carinispa*, 1 (gegen 100), stellt den reinen Typ II dar, sie hat ausserdem ganz regelmässig und gleich verlaufende Deckenelemente, d. h. alle Zwischenraeume der Decken sind untereinander gleich rippenfoermig erhaben. Ich halte die Kielung der ungeraden Raeume fuer eine sekundaere Erscheinung, also eine Weiterbildung des Urtyps. Doch koennte man auch wohl meinen, dass wegen der grossen Regelmässigkeit der Rippen und Reihen *Carinispa* den Urtyp selbst darstelle.

In diesem kurzen, durchaus nicht erschöpfenden Abriss hoffe ich gezeigt zu haben, wie aus der angenommenen Urform der Deckenelemente z. B. bei *Xenochalepus*, 4 Rippen, 10 Reihen, eine ununterbrochene Abwandlung dieser Elemente zur Deckenstruktur von *Pentispa* und *Microrhopala* fuehrt, 3 Rippen, 8 Reihen. An die Stelle der Rippen treten oft ganz oder teilweise ihre zuweilen kaum erhabenen Raeume, z. B. beim Subgenus *Hemichalepus* Spaeth von *Xenochalepus*. Als Abzweigungen oder Weiterentwicklungen fasse ich auf die Decken-Eigenschaftungen von *Heptista* 6 (9), 3 Rippen, $7\frac{1}{2}$ Reihen, ferner von *Carinispa*, wo auch die ungeraden Raeume rippenfoermig geworden sind. Weiterhin schliessen sich an die Gattungen mit rauher, m. o. w. unregelmässiger Skulptur, bei der auch die Querscheidewaende der Punkte zu Querrippen sich umbilden. Diese Entwicklungslinie beginnt zuerst mit nur rauh und nur wenig unregelmässig skulptierten Arten von *Uroplata* subg. *Codiohispa*, z. B. *girardi* Pic, *rudis* Uh. Sie fuehrt ueber *Euprionota* und *Corynispa* zu *Physocoryna*, *Octotoma* und *Acritispa*, auf deren Decken die Rippen und Querrippen zu einem unregelmässigen Netz umgebildet sind. (Auch die Arten um *Uroplata fulvopustulata* Baly scheinen die Erbanlage der Rauhsulptur in sich zu tragen).

II. Teil.

E) Decken- und Schulterzahn.

Eine Erweiterung der Decken erfolgt bei den Chalepini und Uroplatini in manchen Gattungen oder Teilen derselben am Hinterwinkel oder an der Schulter. Der Hinterwinkel springt zahnartig oder nur winklig m. o. w. nach aussen vor. Eine Gattung kann man aber auf dieses Merkmal nicht begruenden. Vielmehr

tritt der Zahn innerhalb verschiedener Gattungen m. o. w. stark entwickelt auf. So sind *Uroplata coarctata* Ws. (2, Brasilien: S. Catharina) und *U. anonicola* Mlk. (2, Brasilien: Bahia) nur durch die Groesse des Zahns voreinander zu unterscheiden, bei *coarctata* springt er viel weiter vor als bei *anonicola*. Da sonst keine Unterschiede bei ganz gleicher Koerperfaerbung und Zeichnung der Decken zu finden sind, habe ich *anonicola* als Synonym zu *coarctata* gestellt (68:455). Wenn meine Ansicht richtig ist, dann gibt es also sogar Arten, bei denen die Groesse des Zahnes weit ueber die uebliche Variabilitaetsbreite schwankt. Der taxonomische Wert dieses Merkmals ist also gering. Eine eingehendere Besprechung der Entwicklung des Deckenzahnes soll hier nicht gegeben werden.

Die andere Stelle mit fortschreitender Weiterentwicklung findet sich an der Schulter. Auch hier ist eine Aufstellung von Gattungen mit oder ohne Schulterzahn nicht moeglich. Das hat schon W e i s e erkannt, als er den Umfang der Gattung *Octhispa* Chap. auch auf solche Arten der alten Sammelgattung *Uroplata* ausdehnte, denen dieser Zahn ganz fehlt. Er schreibt (Verh. naturf. Ver. Bruenn, 48:150, 1909(10)): ueber *Octhispa* Chap: "Von C h a p u i s als Untergattung von *Uroplata* und durch... die winklige Erhebung der 3. Rippe auf der Schulter charakterisiert worden, laesst sich aber in dieser Begrenzung nicht halten, weil der Schulterzahn innerhalb der Artenreihe immer niedriger wird und die Schultern zuletzt ihre normale Bildung erreichen. Ich habe daher den Umfang der Gattung erweitert und..." Schulterzaehne finden sich noch unter den Chalepini bei den *Stethispa*-Arten, bei einigen *Baliosus*-Arten und in der Anlage bei *Chalepus zikani* Uh. und einigen *Xenochalepus*-Arten; bei den Uroplatini bei *Corynispa clavicornis* Uh. und in der Anlage bei den *Heterispa*-Arten.

F) Weiterentwicklung der Schultererhabenheit.

Bei den Chalepini und Uroplatini sind die Schultern immer gut entwickelt, sodass sie seitwaerts m. o. w. winklig vortreten. Im einfachsten Falle, vielleicht koennte man Anfangsstadium sagen, z. B. bei *Stenopodius flavidus* Horn (2 St.) von den Uroplatini, sind die Schultern konvex. Diese ganze, allseitig gewoelbte Flaechen hat noch keine Unterteilung, da die Rippen auf den geraden Zwischenraeumen II, IV, VI und VIII nur ganz schwach entwickelt sind. Gegen die Epipleuren ist die Schulterbeule durch den schmal abgesetzten Seitenrand auf normale Weise begrenzt. In den allermeisten Faellen besteht aber eine Unterteilung der

Schultererhabenheit in 3 Flaechen. Diese erfolgt durch das Auftreten einer Flaechen auf der Vorderseite der Schulter, die ich die Schulter-Vorderflaechen nenne. Durch sie entstehen noch zwei andere Flaechen, nach aussen extrahumeral die "Randflaechen", nach innen humeral die "Innenflaechen". Die Randflaechen enthaelt das basale Ende des 5., des aeusseren Zwischenstreifens, die Innenflaechen ganz oder teilweise das basale Ende der humeralen Zwischenstreifen 3 und 4, oder 3/4. Auch im extremsten Falle der Ausbildung des Schulterzahn, bei *Octhispa caprea* Ws., bleiben der 1. und 2. Streifen am Aufbau der Schulter unbeteiligt.

G) Die Begrenzung der Schulter-Vorderflaechen. (Abb. 4-6).

Diese Flaechen habe ich schon erwahnt bei der Beschreibung von *Octhispa spitzii* (72:420). Sie ist ein Teil der humeralen Elemente. Gegen letztere ist die Flaechen m. o. w. begrenzt. Von einer Grenze soll gesprochen werden, wenn Kielchen oder Falten die Flaechen von der allgemeinen Deckenwoelbung oder der Konvexität einer der Rippen trennen. Je nach dem Fortschreiten der Begrenzung unterscheide ich 5 Stufen, die durch Uebergaenge untereinander verbunden und nicht immer scharf zu trennen sind. Auch individuelle Abweichungen treten auf. Die Stufen werden aber bei der Abkuerzung der Beschreibungen gute Dienste leisten.

1a Stufe. Die Flaechen ist von den Epipleuren durch deren Seitenrand selbst abgesetzt wie bei *Spaethispa pulchella* Suffr. (8). Es kann auch eine Falte oder ein Kiel als Grenze auftreten. Grenze *1a*.

1b Stufe. Zu allermeist ist die Flaechen durch den Epipleuren-Schulterrand (a) abgesetzt. Dies ist der vorderste Teil der Epipleuren. Der Schulterrand stoesst hinten mit dem Epipleuren-Seitenrand m. o. w. winklig zusammen bis zur voelligen Verwundung zum einfachen Seitenrand. Dann haetten wir wieder Stufe *1a* vor uns, z. B. bei *Uroplata atricornis* Pic (6, Argentinien), *U. nigratarsis* Ws. (8, Argentinien), *U. daguerrei* Pic (2, Argentinien), dagegen Grenze *1b*.

2. Stufe. Die Flaechen ist weiter gegen den Randstreifen, den 5., durch eine Falte oder einen Kiel getrennt. Grenze 1 und 2, z. B. *Chalepus sanguinicollis* L.

3. Stufe. Die Flaechen wird ferner an der Vereinigungsstelle der 3. und 4. Rippe von dem aeusseren humeralen Zwischenstreifen 4 geschieden. Grenze 1-3, z. B. *Baliosus ruber* Weber.

4. Stufe. Die Flaechen hat auch gegen den inneren humeralen Streifen 3 (Typ I) oder dessen Rest, die 5. Punktreihe (Typ II),

einen m. o. w. konvexen Rand oder Kiel. Grenze 1-4 (Abb. 6), z. B. *Baliosus indutus* Uh., *Uroplata girardi* Pic.

5. Stufe. Die Flaechе ist schliesslich noch an der Basis, also allseitig, begrenzt. Grenze 1-5, z. B. *Uroplata bipuncticollis* Chap., *rudis* Uh.

Die Grenze 3 kann verschwinden bei Vereinigung der Rippen 3 und 4, die dort zur Erhoehung der Schulter beitragen. Die Spitze der Vorderflaechе stoesset mit dem Vereinigungspunkt der beiden Rippen zusammen (Abb. 5, 7). Die Vorderflaechе ist gewoehnlich und besonders gegen die Epipleuren etwas vertieft. Diese geringe Vertiefung kann sich ziemlich stark weiter entwickeln bis zum ausgesprochenen Eindruck bei *Probaenia*. Die Flaechе hat meist die Form eines langgestreckten Bogendreiecks, dessen Spitze bei voller Ausbildung der Schulter auf deren hoechster Erhoehung liegt.

H) Die Entwicklung der Schulter bei den Chalepini.

Im allgemeinen zeigen die Chalepini geringe Neigung zur Weiterentwicklung der Schulter.

Gattungen des 1. Typs. — Bei diesen oder den ihm am naechsten stehenden Zwischenformen, die wir als sich weiterentwickelnde Formen hinsichtlich der Decken betrachten muessen, sind es *Chalepus*, *Xenochalepus*, *Baliosus* und *Stethispa*, bei denen Arten mit besonderer Betonung und Erhoehung der Schultern bekannt geworden sind.

Chalepus. Von dieser Gattung sind mir 40 Arten zugaenglich. Sie haben gut heraustretende Schultern, aber sonst bleiben letztere bei den vielen Arten dieser grossen Gattung einfach. Sie bleiben auf Stufe 2 stehen. Ihre Vorderflaechе ist meist gewoelbt, zuweilen ein wenig niedergedrueckt. *Ch. walshii* Crotch. (2, USA) hat eine richtige Schulterbeule mit Begrenzung nach Stufe 1b. Das koennte man als schwaechste Entwicklungsform auffassen. Die staerkste Auspraegung erfahrt die Schulter bei *Ch. lineola* Chap. chrom. *zikani* Uh. (1, Amazonas). Hier springt diese durch die 3. Rippe viel kraeftiger als bei den anderen Arten vor. Die Deckenbasis ist stark gewoelbt und verbreitert, auch traegt letztere mit zum Aufbau der Schulter bei. Von einer Vorderflaechе kann man wohl sprechen, doch ist sie nicht scharf begrenzt, vielmehr konvex verrundet. Die Begrenzung erfolgt nur fein leistenfoermig gegen die Epipleuren nach Stufe 1a.

Xenochalepus enthaelt aehnlich wie *Chalepus* auch Arten mit Schulterbeule. Hierher gehoeren *X. dorsalis* Thunb. (25, USA)

und Verwandte. Sonst sind die Schultern gut betont. Bei *X. dictyopterus* Baly (2 Brasilien), *platymerus* Luc. chrom. *digestus* Uh. (6, Rio; S. Catharina) und *platymeroides* Uh. (6, Bahia; Minas), Arten die miteinander verwandt sind, beginnt die Weiterentwicklung. Der ebenfalls in diese Verwandtschaft gehoerige *X. assimilis* Uh. (1, Brasilien: S. Paulo) hat noch die gewoehnlichen Schultern. Etwas staerker erhoehrt ist sie bei *X. dictyopterus*, bei *platymerus* wird sie stark erhaben durch die 3. Rippe und die erweiterte Deckenbasis, vergl. *Chalepus lineola* chrom. *zikani*. Die Vorderflaeche ist nicht scharf begrenzt, fast quadratisch, gegen die Epipleuren nicht begrenzt, aber nach innen durch die konvex-erhabene Rippe. Die 4. Rippe ist nur sehr fein ausgebildet und auf der hoechsten Erhebung mit der 3. vereinigt. (Hierfuer habe ich keine Stufe aufgestellt). Bei *X. platymeroides* ist die Vorderflaeche besser abgesetzt, ziemlich breit laenglich-dreieckig, deutlich vertieft und gegen die Epipleuren durch eine Leiste begrenzt. 4. Rippe wie oben. Fast Stufe 4.

Baliosus. Die Arten haben meist wohlausgebildete Schultern, denen man das Streben nach zahnartiger Weiterentwicklung anmerkt. Vorderflaeche nach Stufe 2. Bei einigen Arten steigert die Schulter ihre Entwicklung bis zum ausgepraegten Schulterzahn, an dessen Aufbau sich auch die 3. Rippe beteiligt. In der Reihenfolge der Ausbildung sind dies die Zwischenformen von Typ I *B. ruber* Weber (16, USA), *marmoratus* Baly (3, Panama) und vom Typ I selbst *B. limbiferus* Uh. (1, Bahia), *indutus* Uh. (2, Brasilien: S. Catharina) (Abb. 7). Bei diesen Arten ist die Vorderflaeche schmal, langgestreckt, vertieft und steht auf Stufe 3, bei *indutus* auf 4, ihre Spitze liegt an der Vereinigung der 3. und 4. Rippe. Bei *B. ruber* ist der Zahn noch wenig ausgepraegt, er erscheint als staerker vorspringende Schulter. Bei *B. marmoratus* Baly (Abb. 8) ist die Schulter schon als zahnartig zu bezeichnen, die 3. und 4. Rippe gehen von einer Art Schulterschwiele aus, bei *B. limbiferus* und noch staerker bei *B. indutus* ist der Schulterzahn gut ausgepraegt.

Gattungen des II. Typs. — Von diesen oder den ihm am naechsten stehenden Zwischenformen zeigt keine eine Neigung zur Erweiterung der Schultern, *Anoplitis*, 17 (91), *Anisostena*, 7 (28), *Sternostena*, 5 (33), *Clinocaripa*, 7 (50). Bei ihnen liegt die Vorderflaeche (Stufe 2) vor der Punktreihe 8 und vor 7 und 8 bei *Clinocaripa*. Es ist demnach von dem Humeralstreifen $\frac{3}{4}$ nur der dem 4. Streifen entsprechende Teil (die 8. Reihe) an der Schulterbildung beteiligt. Bei *Anisostena* und *Sternostena*

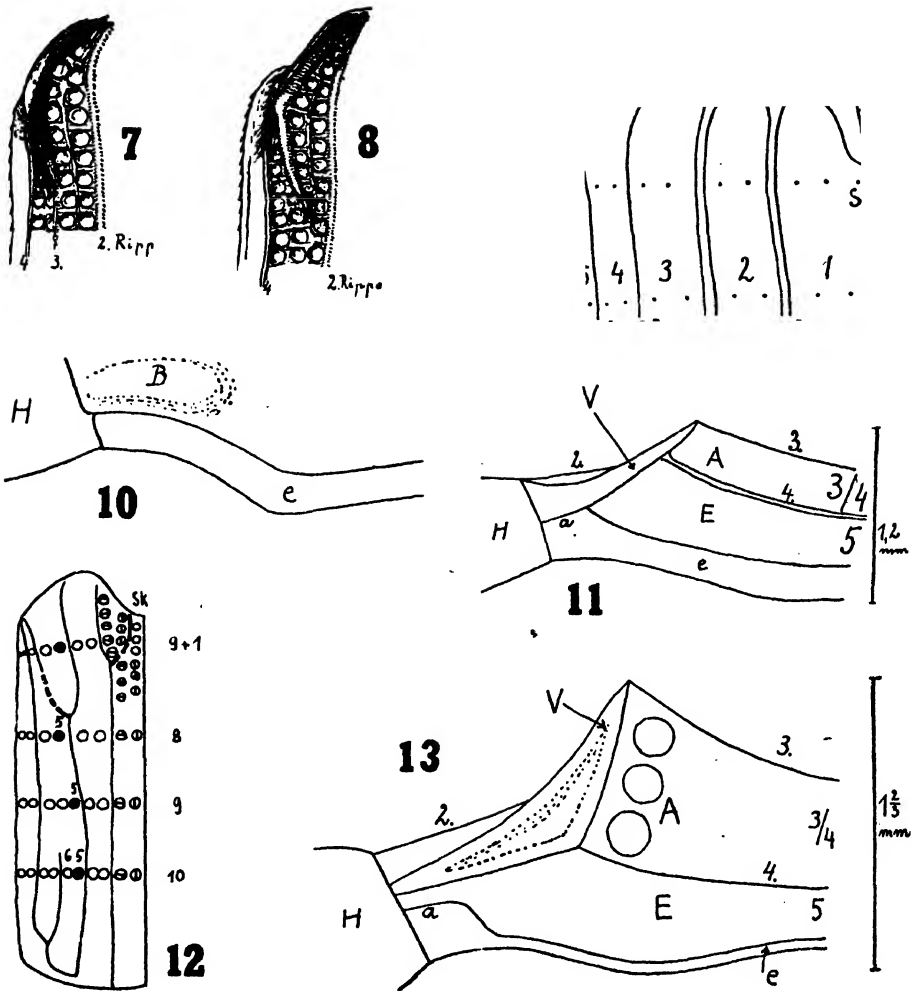


Abb. 7. *Ballosus indutus* n. sp. Holotypus, Linke Schulter mit dem Schulterzahn. Auf der Vorderseite des Schulterflüßes die flach vertiefte Vorderflaeche. Auf der Hinterseite die Vereinigung von Rippe 3 und 4. — Abb. 8. *Ballosus marmoratus* Baly. Linke Schultererhabenheit, den nicht mit der 2. Rippe verbundenen Basalrest der 3. Rippe zeigend. Rechts von der Erhabenheit der 3. Zwischenstreifen mit dem feinen V. Zwischenraum. Hinter der stark gewölbten 3. Rippe liegt die strichförmig vertiefte Vorderflaeche, links oben als schwarzer Strich gezeichnet. — Abb. 9. *Stethispa rufospinosa* Pic. Holotypus. Typ I. Der Schulterdorn wird gebildet von der Vorderkante der Epipleuren (V), dem Aussenrand der Decken (A) und der 4. Rippe (4.R). H: Halsschild. Sk: Skutellarreihe. Die Punkte bedeuten die 10 Punktreihen. 1-5 geben die Zwischenstreifen an. — Abb. 10. *Stenopodius flavidus* Horn und *Ochthispa elevata* Baly. Linke Schulter von der linken Seite. a: Epipleuren-Schulterrand. e: Epipleuren. H: Halsschild. V: Schulter-Vorderflaeche mit ihrem Eindruck in der Mitte. 2: Zweite Rippe. 4: Vierte Rippe. 3/4: Zwischenstreifen 3/4. 5: Zwischenstreifen 5, extrahumerales Element. — Abb. 11. *Ochthispa elevata* Baly, wie bei Abb. 10. A: Aussenflaeche, humerales Element. 3: Dritte Rippe. — Abb. 12. *Ballosus ruber* Weber. Schematisch nach einem Stueck meiner Sammlung von Florida. Verlauf der verzweigten Rippen. Die unterbrochene Stelle unter Sk und die der 3. Rippe bedeuten, dass bei regelmaessigem Rippenverlauf dort die Rippen unterbrochen sind und einen etwas anderen Verlauf nehmen koennen. Sk: die drei Punkte der Skutellarreihe. Die Kreise mit senkrechtem Strich deuten die Punkte der 1. Reihe, die mit waagrechtem die der 2., die schwarzen die der 5. Reihe an. Rechts ist die Zahl der in gleicher Hoehe befindlichen Reihen angegeben. 9+1: 9 Reihen plus Skutellarreihe. — Abb. 13. *Ochthispa caprea* Ws. Linker Schulterzahn, seitlich von links oben. Bezeichnungen wie bei Abb. 10 und 11. Die 10. Punktreihe schiebt sich zwischen Schulterrand und Vorderflaeche bis zur Deckenbasis vor.

ist die Schulter beulig. Es muss ganz besonders darauf hingewiesen werden, dass die 5. Punktreihe immer bis zum Basalrande sich erstreckt und in die Schulterbildung nicht direkt einbezogen wird. Diese Tatsache unterstuetzt meine Auffassung, dass beim II. Typ der scheinbar einfache 3. Zwischentreifen doch aus zwei Streifen besteht, naemlich Streifen 3 und 4, was bei *Clinocarisma* klar ersichtlich ist. Ausnahmen. *Anoplitis fryi* Baly (100, Costa Rica) hat staerker vorspringende Schultern. Der Raum der rueckgebildeten 3. Rippe ist etwas verbreitert und hilft mit die Schulter zu bilden. Bei *Anoplitis heringi* Uh. (14, Costa Rica) ist an der Basis neben dem kurzen Stueck der 3. Rippe die 6. Reihe durch einige Punkte angedeutet. Stufe 4.

I) Ein anderes Entwicklungsgesetz.

Stethispa, 4 (11), Typ I. Die dornartige Schulter beruht hier auf einem anderen Entwicklungsgesetz. Rein aeusserlich ist schon die Richtung des Dornes eine andere. In den in dieser Arbeit vorliegenden Faellen strebt die Erhabenheit m. o. w. senkrecht empor, bei *Stethispa* liegt sie wagerecht (Abb. 9). Die Schulterbeule ist nicht ausgebildet, ihre Stelle bleibt m. o. w. immer flach. Der Dorn liegt vor der Schulter und wird gebildet von der Vorderkante der Epipleuren, dem Aussenrand der Decken und der 4. Rippe. Alle 3 Elemente laufen in der Spitze einer dreiseitigen Pyramide zusammen. Je spitzer die Winkel werden, unter denen sie zusammenstossen, um so mehr springt die Erhabenheit heraus. Richtungsbestimmend ist die Vorderkante. Durch sie werden der Aussenrand und die 4. Rippe zu einer schroffen Richtungsaenderung gezwungen, durch die der Schulterdorn, eine dreiseitige Pyramide, entsteht. Die drei Seiten der Pyramide werden gebildet von der Vorderflaeche, dem vorderen Ende der Epipleuren und des 5. Streifens. Bei *St. rufospinosa* Pic (Holotypus, Matto Grosso), die unter dem mir vorliegenden Material den groessten Dorn hat, kann man von einer Vorderflaeche kaum sprechen. An ihre Stelle tritt das basale Ende des 4. Streifens (Abb. 9).

K) Die Entwicklung der Schulter bei den Uroplatini.

1) Typ I und die ihm nahestehenden Zwischenformen.

Die einfachsten Verhaeltnisse finden sich bei *Stenopodius flavidus* Horn (2, Kalifornien) und sind oben besprochen worden (Abb. 10). Auch sonst bleibt die Schulter meist einfach. Bei *Heterispa*, 3 (ueber 150) ist sie aber erhoeht, weil die 3. Rippe im Basalteil deutlich laengsgewoelbt ist. Bei *H. costipennis* Boh.

(3, Brasilien: S. Catharina; 8, Argentinien) steht die laengliche Vorderflaeche auf Stufe 4, sonst trifft man meistens Stufe 2 an mit Uebergaengen nach 3 und 4. Bei vielen Arten ist die Vorderflaeche grubchenartig vertieft, nicht bloss wie geowöhnlich strichfoermig eingedrueckt. Am besten werden diese Gruebchen ausgebildet bei *Probaenia*, bei *Uroplata* wird diese Erscheinung bei einigen Arten sozusagen eingeleitet. Beispiele: *U. fusca* Chap., fast Stufe 4 (48 St., Costa Rica), *U. obscurella* Ws., fast 4 (1 St. Trinidad; 1, Peru, 1, Brasilien: Goyaz; 4, Paraguay), *U. girardi* Pic, Stufe 4 (3, Bolivia; 5, Paraguay; 5, Argentinien; 5 Brasilien: S. Catharina), *U. rudis* Uh., Stufe 5 (1, Paraguay), *U. bipuncticollis* Chap., Stufe 5 (2, Brasilien: Goyaz; 1, Argentinien).

Probaenia, 20 (123). Die Arten haben an Stelle der Vorderflaeche eine Grube nach Stufe 4-5 ausgebildet. Diese ist m. o. w. dreieckig oder laenglich und verschieden tief eingedrueckt. Bei *P. crenatula* Uh. (28, Costa Rica) ist die Vorderflaeche am schwachsten, bei *P. variolaris* Ws. (2, Brasilien: Goyaz) am staerksten vertieft, Stufe 5. Ob diese Grube als Gattungsmerkmal gegen die sehr nahe verwandte Gattung *Uroplata* verwendet werden kann?

2) Typ II und die ihm nahestehenden Zwischenformen.

Pentispa ohne *Euprionota*. Die Ausbildung der Vorderflaeche ist nicht einheitlich. *P. amplipennis* Uh. (1, Costa Rica) hat eine schlecht wahrnehmbare Vorderflaeche. Sie ist ziemlich flach und hat keine bestimmten Grenzen. Die sonst uebliche Begrenzung gegen die Epipleuren fehlt hier, weil die beiden aeussersten Punktreihen bis zur Deckenbasis verlaufen und sich zwischen Deckenrand und Flaeche schieben. Bei anderen Arten ist die Flaeche m. o. w. eingedrueckt bis zur wohlausgebildeten Grube, z. B. bei *P. distincta* Baly (1, Mexiko, 1 Guatemala), Stufe 5. Die Grenze nach der 5. Punktreihe ist individuell oft verschieden, sodass man Stufe 3 oder auch 5 annehmen kann. Meist kann von einer Grenze nicht gesprochen werden, weil die Woelbung der Schulterbeule sich bis zur Basalkante erstreckt und stark entwickelt ist. Bei *P. fairmairei* Chap. (8, Mexiko; 2, Guatemala; 2 ohne Patria) ist die Woelbung dagegen manchmal so schmal geworden, dass sie kantenartig ist und als Grenze bezeichnet werden kann. *P. salléi* Baly (1, Mexiko) und *P. beata* Baly (1, Mexiko) zeigen Uebergaenge. Die Grenze zur 8. Reihe ist wegen der zuweilen entwickelten Schulterbeule oder wegen der geringen Breiten-Ausdehnung der Reihe schwer festzustellen. 5. und 8.

Reihe sind durch ein Basalstueck der 3. Rippe im Anschluss an die Schulterbeule getrennt. Als Besonderheit ist die fast immer auftretende Grenze gegen die Deckenbasis aufzufuehren, daher Stufe 3 oder 5 ohne 4. Wegen der Beteiligung der Reihen 5 und 8 und der diesen entsprechenden Zwischenstreifen 3 und 4 am Schulteraufbau vergl. die Ausfuehrungen bei Typ I bei *Anisostena* und *Sternostena*. Die Epipleuren laufen zuweilen ohne Schulterrand bis zur Basis, daher einfacher Decken-Seitenrand bis zur Basis (*P. amplipennis* Uh.), oder der Schulterrand ist wenig und undeutlich entwickelt (*P. clarkella* Baly, 33, Costa Rica, *P. fairmairei* Chap., 8, Mexiko, 17, Costa Rica, *P. salléi* Baly, 1, Mexiko). Dieses Merkmal ist also nicht einheitlich ausgebildet. Es finden sich alle Uebergaenge zwischen einfachem Decken-Seitenrand und abgegliedertem Schulterrand.

Microrhopala. Alle Schulterelemente sind hier sozusagen noch in Entwicklung. Am einfachsten sind sie bei *M. vittata* F. (27, USA) ausgebildet. Hier hat der Deckenrand noch keinen Schulterrand abgezweigt, Schulter recht flach, ohne Vorderflaeche. Bei den anderen Arten ist meist eine Schulterbeule vorhanden, die Vorderflaeche steht auf Stufe 1a bei *M. cyanea* Say (1, Arizona), oder 1b bei *M. xerene* Newm. (1, New York), *moseri* Uh. (1, Colombia). Die Flaeche ist wenig ausgebildet, sie stellt eine Art Verflachung auf der Vorderseite der Schulterbeule dar, die nur nach dem Decken-Seitenrande zu schwach eingedrueckt sein kann. Der Schulterrand ist nicht immer deutlich abgetrennt, sodass man zweifeln kann, ob Stufe 1a oder 1b vorhanden ist (*M. perforata* Baly, 1, Panama; 17, Costa Rica; *pulchella* Baly, 4, Costa Rica). Er ist deutlich entwickelt bei *M. xerene* Newm., *moseri* Uh., *columbica* Ws. (2, Colombia), *ciliata* Ws. (2, Mexiko, Stufe 1b). Bei *M. columbica* Ws. befindet sich an Stelle der Vorderflaeche ein tiefer Punkt, der als solcher allseitig begrenzt ist, uneigentliche Stufe 5. Schulterrand vorhanden.

a) Zwischenformen von Typ II bei *Octhispa*.

Octhispa Chap. Vom Autor als Subgenus von *Uroplata* aufgefasst (Ann. Soc. Ent. Belg. 20:23, 1877) und auf Arten mit kammartig oder pyramidenartig erweiterter Schulter begruendet. W e i s e hat dann (Verh. naturf. Ver. Bruenn, 48:150, 1909 (10)) den Umfang der Gattung erweitert, indem er "*Octhispa* alle *Uroplata*-Formen mit 8-reihig punktierten, dreirippigen Fluegel-Decken" zuteilte. In seinem Schluessel (loc. cit. 145) schreibt er aber ueber alle Gattungen unter der Leitzahl 6':

"Selten schieben sich zwischen die 5. und 6. Reihe an der Basis und in der Mitte kurze Stuecke einer ueberzaehligen Reihe..." In Gen. Ins. (125:42 u. 49) wiederholt er dieselben Gesichtspunkte hinsichtlich der Punktreihen. Bei meinen Studien des reichhaltigen *Octhispa*-Materials des Berliner Museums (77:317-330) gewann ich die Ueberzeugung, dass diese Gattung immer noch eine Sammelgattung sei und habe deshalb kleinere Gattungen abgespaltet. Die verbleibende Gattung *Octhispa* vereinigt in sich aber immer noch Arten, deren regelmaessige 8 Punktreihen mit "Zusatzpunkten" versehen sind. Nach meiner jetzigen Ueberzeugung muss man sie aber als "Restpunkte" oder "Restreihen" bezeichnen. Die 3. Rippe ist entweder als kurzer Rest vorhanden oder ganz geschwunden. Auch bei den abgetrennten Gattungen koennen solche "Reste" noch auftreten, z. B. bei *Temnocthispa* Uh. (77:318). Punktreihen und Schulterbildung sind bei der Zerlegung nicht als gattungsbedingend verwendet worden und duerfen es auch in Zukunft nicht werden.

Die Schulterelemente bei *Octhispa*. Wir haben es hier teils mit Arten zu tun, bei denen diese Elemente normal entwickelt sind und teils mit solchen Arten, bei denen sich eine schrittweise Weiterentwicklung bis zur Ausbildung eines grossen Schulterzahnes verfolgen laesst.

In der Weiterentwicklung sind 3 Gruppen zu unterscheiden. In die 1., die *Elongata*-Gruppe, die wohl die urspruengliche ist, gehoeren alle die Arten, bei denen das Basalstueck der 3. Rippe, das ist der Schulterzahn am Ende frei auslaeuft, und deren Fortsetzung der VI. Raum ist. In die 2. Gruppe, die *Elevata*-Gruppe, die als fortgeschrittenere 1. Gruppe anzusehen ist, gehoeren alle Arten, bei denen sich die Erhabenheit am Ende mit der 2. Rippe verbindet. In die 3. Gruppe stelle ich *O. spitzii* Uh., die gewissermassen eine weiter entwickelte *O. gemmata* Germ. ist. Hier ist nicht einmal ein Rest der 3. Rippe vorhanden. Diese Gruppe gehoert einer neuen Entwicklungsreihe an.

b) Die Schultererhabenheit der *Elongata*-Gruppe.

O. elongata. Die Schulter-Vorderflaeche ist schmal und langgestreckt wie ein schwach gebogenes Trapez, hat eine seichte Rinne, ist begrenzt nach Stufe 4 und befindet sich auf der Vordereite des Schulterfirstes, dessen Rueckseite schmal und fast schneidend ist. Es ist diese Rueckseite das allein vorhandene Basalstueck der 3. Rippe, die basalwaerts zu einem hohen, 3-eckigen Zahn aufsteigt. Sie endet spitzenwaerts frei auf dem

6. Raum, der gewissermassen ihre Fortsetzung bildet. Von den spitzenwaerts gelegenen Ecken des Trapezes geht je eine Rippe aus. Von der hintersten Ecke nimmt das 3. Rippenstueck seinen Ausgang, von der vorhergehenden die vollstaendige 4. Rippe. Durch den Zahn kommen nunmehr die Innen- und Randflaeche der Schultererhabenheit erst richtig zur Entwicklung. Bisher waren sie bedeutungslos und wurden deshalb nicht weiter erwaeht. Die Innenflaeche enthaelt 2 Punktreihen, von denen die innere zweifelsfrei die 5. Reihe ist, die auessere, durch den Kiel begrenzt, halte ich fuer die 6., ihre scheinbare Fortsetzung auf der anderen Seite des Kieles gehoert der 8. Reihe an, deren Beginn zwischen der 3. und 4. Rippe in einer tiefen Furche liegt. Die Randflaeche enthaelt die stark verbreiterte Basalflaeche des 5. Zwischenstreifens mit der 9. und 10. Reihe. Die Epipleuren steigen vorn stark aufwaerts. Der Schullerrand ist wohl entwickelt und randet fast die ganze basale Haelfte der Vorderflaeche. Schullerrand und Rand der Epipleuren stossen fast in einem rechten Winkel zusammen. *O. rugata* Waterh. (1, Peru) hat dieselben Verhaeltnisse, ebenso *O. pustulata* Chap. (1, Rio de Janeiro), aber auf der Aussenflaeche mit kurzer 7. Reihe unterm Schulterfirst, also an der Basis mit 10 Reihen! *O. tucumana* Ws. (1, ohne Patria) wie *elongata*, aber ohne 6. Reihe. *O. centromaculata* Chap. (4, Costa Rica) wie *elongata*. Der Schulterzahn liegt nach dem Schluempfen flach wie die Deckenscheibe, er richtet sich erst spaeter auf.

c) Die Schultererhabenheit der *Elevata*-Gruppe.

Diese Gruppe scheint in einer Weiterentwicklung begriffen zu sein und zwar in Richtung nach der Rauhsulptur zu. Zunaechst ist bei *O. elevata* Baly (2, Colombia; 65, Costa Rica) der basale Rest der 3. Rippe hinter dem Schulterzahn mit der 2. Rippe verbunden. Dadurch ist der erste Schritt, ausser durch die Schulterbildung, in der Unterbrechung der Regelmaessigkeit der Deckenelemente getan. Die Vorderflaeche ist lang und schmal dreieckig, etwas vertieft, Stufe 4-5. Auf der allseitig begrenzten Innenflaeche liegen 2 Punktreihen, die 5. und die 6. Auf der Aussenflaeche laufen auch 2 Reihen im Streifen $3/4$, die innere halte ich fuer die 5., die auessere fuer die 8. Sonst gilt auch noch das fuer die 1. Gruppe Gesagte.

Dass meine Anschauung von der Unterbrechung der Punktreihen durch Rippen richtig ist, laesst sich bei *Baliosus ruber* Weber, der allerdings vom Typ I ist, verfolgen (Abb. 12). Hier entwickeln sich die rippenfoermigen Raeume im Sinne der Anlage

zur Rauhsulptur weiter. Erstens: Der rippenfoermige Skutellarraum laeuft nicht nach der Naht zu, sondern verbindet sich nach aussen mit der 1. Rippe. Dadurch wird Reihe 1 und 2 unterbrochen und die Skutellarreihe mit der 1. verbunden. Es scheint also die 1. Reihe neben dem Schildchen ganz gerade bis zur Basis durchzulaufen. Die normalerweise vorn nach aussen gebogene 1. Reihe ist abgetrennt und scheint eine "Zusatzreihe" zu sein. Die 2. Reihe ist scheinbar weiter hinten vorm Schildchen mit der 1. Reihe vereinigt, aber ihr wirkliches Basalstueck liegt umschlossen und abgetrennt neben der "Zusatzreihe". Weise (Verh. naturf. Ver. Bruenn, 48:131, 1909 (10)) nennt die "Zusatzreihe" "die abgekuerzte Reihe der anderen Arten". Haette Weise Recht, so laege ein ganze besondere, abweichende Bildung dieser Reihe vor. In Wirklichkeit durchsetzt die Skutellarrippe die Reihen 1 und 2 und bewirkt die geschilderte Unregelmassigkeit. Das beweisen Stuecke, bei denen die Skutellarrinne nicht mit der 1. Rippe verbunden ist, sondern frei auslaeuft (2, Indiana, Senckenb. Mus.). Zweitens: Die 3. Rippe verbindet sich fuer gewoehnlich im Basaldrittel mit der 2. Rippe. Dadurch werden die Reihen 5 und 6 zertrennt und im Basaldrittel in eine umgrenzte Flaeche eingeschlossen. Im 2. Deckendrittel laeuft zunaechst eine Reihe, die 5. und mehr hinten eine zweite, die 6. Reihe, weiter nach der Spitze zu. Es sieht aber so aus, als liefe die 7. Reihe entlang der 2. Rippe nach der Spitze zu.

Mit liegen aus meiner Sammlung 3 St. (1, Indiana, 1, Texas, 1 USA) und aus dem Senckenberg-Museum 4 von Indiana vor, bei denen die 3. Rippe sich der 2. zwar stark naehert, aber nicht mit ihr verbunden ist. Diese 7 Stueck (von 16!) zeigen ganz einwandfrei den Verlauf der 6. und der uebrigen Reihen, wie er im I. Teile dieser Arbeit geschildert worden ist.

Die Unterbrechung der Reihen durch Rippen wird bei der vollen Ausbildung der Rauhsulptur zur Regel. Die Reihen selbst haben dabei merkwuerdigerweise das Bestreben, ihren regelmassigen Verlauf beizubehalten. Schon bei Typ I und II sieht man, dass die Querraeume zwischen den Punkten an der Verrundung der Sulptur beteiligt sind.

O. tricolor Suffr. (3, Cuba) und *miniata* Baly (2, Venezuela) verhalten sich wie *O. elevata*. *O. humerosa* Chap. und *loricata* Ws. zeigen wahrscheinlich aehnliche Verhaeltnisse. Letztere hat besonders stark entwickelten Schulterzahn.

O. binotata Chap. (1, Paraguay). Vorderilaechte ziemlich breit gerinnt, Stufe 5. Das Basalstueck der 2. Rippe ist nicht

erhaben, es ist so weit rueckgebildet, dass selbst der entsprechende Raum undeutlich geworden ist. Innenflaeche unregelmassig punktiert, mit dem Rest der 6. Reihe und einigen Punkten, von denen man nicht sagen kann, dass es Zusatzpunkte waeren, oder dass sie der 7. Reihe angeh hoeren. Streifen $3/4$ mit 3 Punktreihen, von denen ich die mittlere fuer die 6. halte.

O. quadrinotata Ws. (1, Brasilien: Minas). Vorderflaeche an der Basis recht breit, Stufe 4. Das Basalstueck der 2. Rippe ist rueckgebildet, ihr Raum kann aber verfolgt werden. Innenflaeche mit der 6. Reihe und einigen Zusatzreihen oder vielleicht Restpunkten? Streifen $3/4$ mit der 5. und 8. Reihe, in ihrer Mitte eine unregelmassige Reihe von Punkten, die der 6. und in der Mitte der Decken vielleicht auch der 7. angeh hoeren koennen. Zwischenform von Typ II.

O. caprea Ws. (1, Paraguay) (Abb. 13). Zwischenform von Typ II. Bei dieser Art ist der Schulterzahn am staerksten unter den mir bekannten Arten ausgebildet. Weise sagt in seiner Beschreibung: "Die Schulter ist in ~~einem~~ dicken Zahn erhoehrt, der an der Spitze geradlinig abgestutzt ist, sodass er, von hinten betrachtet, wie ein rechteckiges, schraeg nach oben und aussen gerichtetes Horn erscheint". Ich sehe in *O. caprea* einen weiter entwickelten *Elevata*-Typ. Vorderflaeche und damit der First in der Mitte winklig oder geknickt und verbreitert. Das Stueck des Firstes zwischen dem Rest der 3. und der vollstaendigen 4. Rippe ist hier vergroessert nach Laenge und Breite. Die Flaeche aehnelt einem Bogendreieck. Basalstueck zum Teil rueckgebildet. Zwischen der 2. und 4. Rippe liegt ein grosser Zwischenstreifen mit sich entwickelnden Querrippen am Spitzenende. Innenflaeche mit der 5. und 6. Punktreihe. Die 5. setzt sich auf der aeusseren Schulterflaeche, auf der anderen Seite des Firstes fort. Auf der Randflaeche liegen 3 Reihen, die sich bis zur Deckenspitze erstrecken. Die mittlere, die 6. oder 7. Reihe, wird gegen die Spitze zu etwas unregelmassig, fast koennte man dort 2 Reihen vermuten. Die Basis des Randstreifens hilft mit die aeussere Schulterflaeche bilden. Die Deckenelemente stehen im Anfang der Ausbildung zur Rauhsulptur.

Einen im Sinne der Rauhsulptur fortgeschrittenen *Elevata*-Typ stellt *Corynispa clavicornis* Uh. dar (5, Brasilien: Bahia; Rio de Janeiro). Die Art steht noch im Beginn der Rauhsulptur (21:164-), auf die ich hier aber nur insoweit eingehe, als es fuer unsere Betrachtungen noetig ist. Vorderflaeche auf Stufe 4. Schulter dreieckig erhaben, ihr First mit der 2. Rippe verbunden,

diese vorn rueckgebildet, ihr Raum undeutlich. Innenflaeche mit Reihe 5 und 6. Streifen 3/4 mit Reihen 5 bis 8, die beiden mittleren, die 6. und 7., etwas unregelmassig, beide nach der Spitze zu rueckgebildet. Raeume dieses Streifens ganz unregelmassig.

d) *Die Schultererhabenheit der Spitzzi-Gruppe.*

Octhispa spitzi Uh. (2, Brasilien: Bahia; Minas). Hier haben die Arten von *Octhispa* mit 3 Rippen und 8 Reihen, also Typ II, eine eigene Entwicklung eingeschlagen. Der Schulterfirst wird naemlich nicht von einem Rest der 3. Rippe gebildet, sondern von der wohl entwickelten 2. Rippe. Vorderflaeche einem breiten Bogendreieck gleichend, etwas vertiefter, nicht schmal und gestreckt, bei einem Paratypoid mit 3 Punkten (dem Basalende der 5. Reihe?), beim anderen glatt. Innenflaeche mit 2 Reihen, der dritten und vierten, ihr III. Raum an der Basis breiter als ueblich, 3/4 Streifen zwischen der 2. und 4. Rippe mit 2 Reihen, der fuenften und achten. Vierte Rippe, Aussenstreif, Aussenrand der Epipleuren wie beim *Elongata*-Typ mit beim Aufbau der Schultererhabenheit beteiligt.

O. spitzi Uh. ist gewissermassen eine *O. gemmata* chrom. *plagipennis* Chap. (6, Brasilien: S. Catharina) mit weiterentwickelter Schultererhabenheit. Die Anlage der Schulter bei chrom. *plagipennis* ist fast der bei *O. spitzi* gleich. Die Vorderflaeche ist etwas kuerzer, mehr quadratisch, eingedruickt, mit 2-3 Punkten, dem Basalende der 5. Reihe, das individuell mit in die Ausbildung der Vorderflaeche einbezogen sein kann. *O. spitzi* ist bisher die einzige Vertreterin dieser Gruppe.

Fuer kuenftige Bearbeiter der Gattung *Octhispa* wird es wichtig sein zu beachten, dass auf dem VI. Raume der Rest der zurueckgebliebenen 3. Rippe an der Schulter entwickelt sein kann oder nicht.

Schlussbetrachtung.

Alle unsere systematischen Erkenntnisse sind eine Funktion des untersuchten Materials. Untersuchungen vorstehender Art koennen sich nur auf einzelne Stuecke gruenden. In unserem Falle sind es Imagines, und als solche sind sie Endglieder einer Entwicklung, deren Praeimaginalstadien meist unbekannt sind. Aus der Uebereinstimmung der Imagines schliessen wir auf Arten, aus der Aehnlichkeit der Arten untereinander auf naehere oder weitere Verwandtschaft. Die Arten werden dann weiter in supraspezifische Einheiten zusammengefasst. Dieser Aufbau unseres Systems

ist eine Taetigkeit unseres ordnenden Geistes, der damit versucht, wahrgenommene Einzeltatsachen miteinander zu verknuepfen.

Wenn ich Typ I als urspruenglichen ansehe und Typ II und alle Zwischenformen aus ihm ableite, so sind das bildliche Aussagen ueber Vorgaenge, die sich einer direkten Beobachtung entziehen. Was hinter den Erscheinungsformen steht, koennen wir nicht erkennen. Es muss aber angenommen werden, dass es richtig ist, von tatsaechlich erkannter Aehnlichkeit auch auf tatsaechliche Verwandtschaft zu schliessen. In der Erbmasse der Chalepini und Uroplatini sind sehr viele gemeinsame Erbanlagen vorhanden, die sich bald hier, bald da offenbaren. So kann man z. B. aus der Variationsbreite der Deckenelemente von *Baliosus ruber* Weber ersehen, dass der beginnenden Rauhsulptur urspruenglich der Typ I zu Grunde liegt. Bei *Uroplata fulvopustulata* Baly laesst sich ebenso die schrittweise eingeleitete Verminderung von Reihen studieren. Die Variationsbreite verraet also verschiedene, sonst verborgene Erbanlagen. Von *Octhispa siptzi* Uh. habe ich bez. der Schultererhebung gesagt, dass die Art gewissermassen eine weiter entwickelte *O. gemmata* Germ. sei. Das ist natuerlich nur bildlich gesprochen. Gemeint ist doch, dass beide Arten in ihrem Erbgut die Anlage zur Schulterentwicklung in sich tragen. Dasselbe gilt auch fuer *Baliosus ruber* Weber und *B. marmoratus* Baly: "Streben nach zahnartiger Weiterentwicklung". Durch die bildliche Ausdrucksweise wird man auf folgendes aufmerksam gemacht. Wenn man die *Octhispa*-Arten schliesselt, dann steht der Gegensatz: "Schulter einfach" gegen "Schulter erhaben", zunaechst fest. *O. siptzi* kaeme also unter die Arten mit erhabener Schulter zu stehen. Andererseits ist aber klar, dass damit die beiden einander sehr aehnlichen also auch fuer verwandt anzusehenden Arten auseinander gerissen werden. Es kann also ein Schluessel nicht in jedem Falle die verwandtschaftlichen Zusammenhaenge wahren.

Ich habe mich neben der Wiedergabe tatsaechlicher Beobachtungen oft und gern zur Erhoehung der plastischen Darstellung bildlicher Ausdruecke bedient. Das ist immer zu beruecksichtigen. Zuweilen habe ich durch "sozusagen" oder "gewissermassen" auf die Bildlichkeit hingewiesen.

Zusammenfassung.

1) Chalepini und Uroplatini zeigen auch in den Deckenelementen grosse Verwandtschaft. Diese Elemente liefern keine Trennungsmerkmale. Viele ihrer Eigenschaften sind gemeinsames Erbgut.

2) Es sind zu unterscheiden: Typ I mit 4 Rippen und 10 Punktreihen, und Typ II mit 3 Rippen und 8 Punktreihen, dazu noch verschiedene Zwischenformen.

3) Typ I gilt als Urtyp. Man muss beim Typ II von *Restrippen* und *Restreihen* sprechen, nicht von *Zusatzrippen* und *Zusatzreihen*.

4) Bei Beschreibungen von Arten nach Typ II oder einer Zwischenform ist die Nummerierung von Typ I anzuwenden. Bei Typ II ist also von Rippen vorhanden die 1., 2. und 4., von Reihen die 1.-5. und die 8.-10., an Zwischenstreifen der 1., 2., 3./4. und der 5.

5) Die Vorderflaeche der Schulter beteiligt sich mit am Aufbau von der einfachen Schultererhabenheit bis zum grossen Schulterdorn.

6) Fuer den Schulterdorn der *Stethispa*-Arten gelten andere Entwicklungsgesetze.

7) Von jedem Typ und von einigen Zwischenformen sind Arten bekannt geworden, die einen Schulterdorn entwickeln.

Appendix.

Baliosus indutus, n. sp. (Abb. 7)

Cuneatus, subnitidus, rufo-testaceus, supra nitore coeruleo-metallico fronte, carinis, margine extremo cum dentibus elytrorum exceptis, antennae nigrae, pedes flavi. Prothorax conicus, transversus, crebre et fortiter punctatus; elytra humeris valde cristatis, angulis posticis prominentibus, discus quadricostatus, costa prima basi paulum edita, tertia cum quarta non conjuncta, intervalla regulariter bifariam punctato-striata, apex truncatus, dentatus, margo lateralis denticulatus.

Holotypus ♂. Tibiae anticae ad apicem paulo incrassatae, tibiae mediae introrsum apice dente parvo acuto, tibiae posticae a dimidio posteriore subito dilatatae. — 4,5 mm.

Allotypoidum ♀. Caput, prothorax, scutum rufo-testacea, paulum nitore metallico, elytra coeruleo-metallica, carinis et dentibus marginis apicalis solis rufo-testaceis. Tibiae simplices. — 5,5 mm.

Mit *Baliosus limbiferus* Uh. (77:334-6) am naechsten verwandt, unterscheidet sich von ihm ausser durch die Faerbung durch den viel staerker erhabenen Schulterkiel. *B. indutus* gleicht noch mehr der 77:337 beschriebenen *B. limbiferus* var. Er ist gewissermassen ein solcher, bei dem die metallische Randfaerbung der Decken ueber die Oberseite ausgedehnt ist.

Holotypus ♂. Schwach keilfoermig, etwas glaenzend. Rotbraun, Oberseite mit blaumetallichem Schimmer, sodass nur Kopf, Rippen, ein sehr schmaler Spitzenrand der Decken nebst dessen Zaehnen rotbraun bleiben, Fuehler schwarz, Beine gelblich. Kopf vor die Augen vorgezogen, vorn und zwischen ihnen mit Kielchen, auf der Stirn und neben den Augen mit je einer feinen

Laengslinie. Kopfschild flach, quadratisch, vorn mit schneidender Kante. Fuehler die Hinterwinkel des Halsschildes erreichend, von der Basis zur Spitze nur ganz allmaehlich verdickt, Schmalseite und Breitseite zu unterscheiden. Von der Breitseite: Glied 1 querrundlich, mit scharfer Vorderecke; 2 ziemlich kuglig, schmaeler und kuerzer als 1; 3 kegelfoermig, etwas laenger als 2; 4 kuerzer, quer; 5 etwas laenger und breiter als 4; Glied 6 quer, etwas kuerzer als 5; 7-10 untereinander fast gleich, jedes sehr schwach quer, fast quadratisch und etwas laenger als 3; 11 elliptisch, fast so lang wie 9+10. Glied 2-5 schwach laengsgestreift, die uebrigen dicht behaart. Halsschild schwach quer, konisch, mit etwas vorspringenden Vorderecken, auf der Scheibe stark und gedraengt punktiert, vorm Schildchen mit schwachem Quereindruck, Mittellinie nur vorn angedeutet. Decken zur Spitze allmaehlich verbreitert, mit geraden Seiten, am Spitzenrand gerade abgeschnitten, Seitenrand mit Saegezaehnchen, Spitzenrand mit einigen spitzen Zaehnen, 8-9 Stueck, die laenger als breit sind, an den Hinterecken breit nach aussen vorgezogen, diese allmaehlich verbreitert, ihre gezahnte Spitze mit den Zaehnen des Hinterrandes in einer Linie, die Erweiterung oben schwach gewoelbt, unten eingedrueckt, Decken mit 4 geraden, hinten frei auslaufenden Rippen, die 1. am staerksten, die fein gesaegte 4. schwach; 1. Rippe zu Beginn schwach erhoelt, Schultern stark dreieckig erhaben. Vorderseite der Erhabenheit mit einer schmalen, schwach vertieften Flaeche bis zur Spitze, von der die 3. und 4. Rippe gemeinsam ausgehen. Zwischenstreifen regelmaessig doppelreihig punktiert, mit 1-2 Skutellarpunkten. Vorderschienen zur Spitze allmaehlich verdickt, Mittelschienen mit einem spitzen Zaehnchen an der Innenseite, Hinterschienen in der Hinterhaelfte ploetzlich von doppelter Breite.

Brasilien: S. Catharina, Nova Teutonia, 27°11' suedl. Breite, 52°23' westl. Laenge, 21. XII. 1938 (F. Plaumann).

Allotypoid ♀. Kopf, Halsschild und Schildchen rotbraun, fast ohne blau-metallischen Schimmer, Decken mit staerkerem Schimmer als der Holotypus, nur die 1.-3. Rippe und die Zaehne des Hinterrandes ohne die der Erweiterung rotbraun. Vorder- und Hinterschienen einfach. Zaehnchen der Mittelschienen sehr klein. Von gleicher Herkunft wie der Holotypus (23. XI. 1935). Beide Stuecke in Coll Uhm ann.

Baliosus limbiferus var. Uh. (77:337) gehoert neben *B. indutus* n. sp. Es ist moeglich, dass hier eine einfache Chromation dieser neuen Art vorliegt, doch kann das erst an Hand eines groesseren Materials nachgeprueft werden. (Coll. Uhm ann).

Novos Microdontinae Brasileiros (Diptera: Syrphidae).

Por Mauro Pereira Barretto* e John Lane**

(Com 1 figura)

Estudando exemplares de sírfidas da subfamília *Microdontinae*, ultimamente colecionados por um de nós, encontramos algumas formas novas, cujas descrições constituem o objeto do presente trabalho. Nele adotamos a nomenclatura morfológica de Crampton (1942).

Aristosyrphus primus Curran, 1941

Aristosyrphus primus Curran, 1941, Bull. Amer. Mus. Nat. Hist., 78: 252.

Examinamos um casal de *Aristosyrphus* e, a despeito de diferenças entre o macho e a fêmea, atribuíveis ao dimorfismo sexual, não duvidamos em identificá-lo como pertencendo à espécie de Curran (1941), dado que os caracteres do macho concordam bem com a descrição deste autor. Não sendo ainda a fêmea conhecida, damos aqui a sua descrição.

Fêmea. — Dimensões: Comprimento do corpo: 10,8 mm; comprimento da asa: 12,3 mm; largura da asa: 3,6 mm.

Cabeça. — Mais larga que o tórax. Olhos bem afastados e glabros. Fronte larga, de bordas ligeiramente divergentes, com largura pouco maior que o comprimento do I segmento antenal, preta, brilhante e esparsamente revestida de pêlos pretos. Vértice ligeiramente protuberante, com tubérculo ocelar pouco distinto e trazendo três ocelos de cor avermelhada, dos quais o mediano é o menor. Face pouco convexa abaixo das antenas e de perfil retilíneo abaixo da convexidade subantenal; cor preta e brilhante exceto dos lados onde há uma faixa de pólen cinzento-prateado; revestimento piloso preto e curto, exceto na borda epistomal e nos ângulos látero-inferiores, onde os pêlos são castanhos e mais longos. Occipício preto, com pólen cinzento-prateado e pêlos pretos.

*) Docente livre e assistente do Departamento de Parasitologia da Faculdade de Medicina da Universidade de São Paulo. (Dir.: Prof. S. B. Pessoa.)

**) Professor adjunto do Departamento de Parasitologia e Higiene Rural da Faculdade de Higiene e Saúde Pública da Universidade de São Paulo. (Dir.: Prof. P. C. A. Antunes.)

Antena com os comprimentos relativos dos segmentos iguais a 3,2:1:7,5; I segmento um pouco achatado lateralmente e mais largo no ápice que na base; II cônico, ambos pretos, brilhantes e revestidos de pêlos pretos; III grosso e achatado lateralmente, uniformemente largo, com o ápice rombo, cor preta, sem brilho e revestido de pólen ocráceo; arista preta, ligeiramente pubescente e com o I segmento de espessura uniforme, e com o comprimento igual ao do II e III reunidos, o II mais largo na base e o III delgado.

Tórax. — Úmeros castanho-claros, glabros. Pré-escudo e escudo pretos e brilhantes revestidos de pelos pretos, curtos e finos, exceto na parte interumeral que é glabra. Escutelo semilunar, sem emarginação, espinhos ou tubérculos, preto, brilhante e revestido de pelos pretos. Pleuras enegrecidas e brilhantes, exceto na borda posterior do mesanepisterno que é castanha-clara, e no mesanepímero que é fusco; parte superior do mesanepisterno e o mesanepímero com pêlos pretos.

Pernas. — Fêmures encurvados, dilatados na porção subbasal; tíbias delgadas na base e espessadas no ápice, particularmente a posterior após um sulco irregular que a percorre na união do terço distal com os dois terços basais; todos os segmentos pretos revestidos de pelos pretos reclinados, exceto na fase interna dos tarsos onde os pêlos são dourados e muito curtos.

Asa. — Nervura *rm* atingindo a célula 1a. M_2 junto à sua base; M_1 perpendicular a M_2 , reta na porção posterior e curva e fortemente dirigida para fora na porção anterior, indo atingir a R_{4-5} em ângulo agudo, quase na extremidade distal desta; uma curta veia apendicular é vista no ponto de encurvamento da M_1 , dirigindo-se para dentro. Coloração amarelo-alaranjada, exceto no terço apical que é infuscado, sendo a extensão da área infuscada menor na borda anterior do que na posterior da asa, e sendo os limites entre a área alaranjada e a infuscada pouco precisos. Nervuras amarelas, exceto na área infuscada onde elas são enegrecidas e orladas de escuro. Calípteros amarelos com franja amarela.

Balancim. — Amarelo com a haste castanha.

Abdomen. — Comprimento cerca de duas e meia vezes o diâmetro longitudinal do tórax; estreito na base, alarga-se pos-

teriormente até o IV segmento. I tergito castanho e revestido de pêlos amarelos; II amarelo com uma faixa mediana longitudinal e as bordas laterais e posterior castanhas, e com revestimento piloso predominantemente amarelo; III preto e revestido de pêlos pretos, exceto nos ângulos póstero-laterais em que os pêlos são dourados; IV e V pretos com pêlos pretos. I esternito castanho; II amarelo-claro na metade anterior e castanho na posterior; os outros enegrecidos.

Alótipo ♀ procedente de Chapadão, Serra da Cantareira, São Paulo, Estado de São Paulo, XI-45 (Barreto col.) e na coleção do Departamento de Parasitologia da Faculdade de Medicina da Universidade de São Paulo.

Examinamos também um exemplar macho capturado no mesmo local e na mesma ocasião (M. Carrera col.) que, como dissemos, concorda muito bem com a descrição original.

Eurypterosyrphus, nov. gen.

Cabeça mais larga que o tórax. Olhos glabros. Vértice regularmente convexo, sem protuberância, com calo ocelar pequeno e saliente. Fronte muito larga (♀), de bordas ligeiramente convergentes e com um sulco transversal muito acentuado. Face muito larga, de bordas paralelas e com um pequeno tubérculo mediano, abaixo do qual ela aparece algo excavada quando a cabeça é vista de perfil. Genas praticamente ausentes. Tubérculo antenal grandemente desenvolvido e situado muito acima do meio da cabeça; antena mais longa que a altura da cabeça, com o I segmento mais longo que o II e III reunidos e achatado no sentido lateral, o II caliciforme e tão largo quanto longo e o III subclavado e com arista longa, nua e inserida na união do terço basal com o terço médio da face externa.

Tórax pouco mais longo que largo, com úmeros pouco salientes, pré-escudo e escudo densa e homogêneamente revestidos de pêlos e escutelo pequeno, subtriangular e sem emarginação, espinhos ou tubérculos.

Pernas anteriores com a tibia ligeiramente curva e dilatada na parte média, o I segmento tarsal alargado e achatado e os segmentos tarsais II-V apenas achatados. Pernas médias com os segmentos tarsais achatados. Pernas posteriores com o fêmur li-

geiramente espessado em quase toda a extensão; tibia mais longa que o fêmur, espessando-se progressivamente da base para o ápice, com um sulco irregular na união do quarto apical com os três-quartos basais, a partir do qual o espessamento é mais pronunciado, e sem cerdas ou pêlos eretos; I segmento tarsal muito espessado e alongado, mais longo que os outros segmentos reunidos, que são achatados.

Asa (Fig. 1) longa e muito larga, inteiramente revestida de microtríquios escuros, longos, finos e muito abundantes, que lhe dão aspecto aveludado quando observada com objetiva de poder ampliador médio; basicosta setosa; costa fortemente recurvada para trás no terço basal, donde resulta ser a célula costal muito larga; extremidade da subcosta ligada a R_1 por uma crossa muito curta; rm atingindo a célula 1a. M_2 pouco aquém da sua parte média; M_1 levemente sinuosa e perpendicular a R_{4-5} ; mcu mais ou menos retilínea; nervuras apendiculares e "vena spuria" ausentes.

Abdomen com 5 segmentos visíveis, exceto a terminália, sendo o I mais estreito, o II alargando-se da base para o ápice e os restantes de largura mais ou menos uniforme e igual à do ápice do II.

Genótipo: *E. melanopterus*, nov. sp.

Discussão. — *Eurypterosyrphus* nov. gen. assemelha-se a *Rhoga* Walk., 1857 e a *Papillomyia* Hull, 1937 (cuja identidade com *Rhoga* admitimos como muito provável), diferindo, entre outros caracteres, pelos seguintes: a) antena implantada em uma grande saliência; b) vértice sem saliência; c) asa longa e muito larga, com abundantes microtríquios que lhe dão aspecto aveludado, com a borda costal acentuadamente curva no terço basal, com célula costal muito alargada, rm atingindo M_{1-2} pouco aquém do meio da célula 1a. M_2 e M_2 ligeiramente curva e não recorrente; d) I tarso anterior muito alargado, tibia posterior não ciliada.

Eurypterosyrphus melanopterus, nov. sp.

Fêmea. — Dimensões: Comprimento do corpo: 8,2 mm; comprimento da asa: 7,8 mm; largura da asa: 3,4 mm.

Cabeça. — Vértice e parte superior da fronte com largura mais ou menos igual ao comprimento do I segmento antenal, pretos, opacos e densamente revestidos de pêlos pretos; parte inferior da fronte brilhante preta e com pêlos pretos escassos; tu-

bérculo ocelar pequeno, arredondado, muito saliente, preto, brilhante e com os três ocelos subiguais. Face pouco mais estreita que a fronte, com uma faixa mediana preta superiormente e castanha inferiormente, faixa esta brilhante e com pêlos pretos; lados da face amarelos, glabros e com pólen amarelo; esta zona longitudinal amarela avançando sobre a borda epistomal e continuando inferiormente na gena. Occipício na parte superior castanho e com pêlos pretos, no resto preto e com pêlos amarelados ou esbranquiçados.

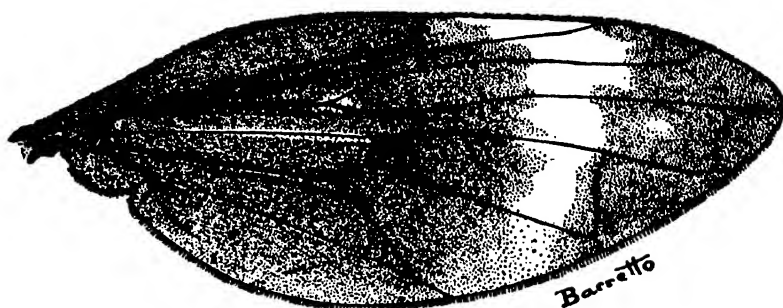


Fig. 1. *Eurypterosyrphus melanopterus* n. g. n. sp., asa.

Tubérculo antenal preto, brilhante e glabro; antena enegrecida, tendo os segmentos os seguintes comprimentos relativos: 4,7:1:3,8; I e II segmentos com pêlos pretos; III com pólen creme; arista mais longa que o III segmento, enegrecida na base e castanha no ápice.

Partes bucais reduzidas, castanhas e com pêlos amarelados e castanhos.

Tórax. — Úmeros amarelo-alaranjados, revestidos de pêlos amarelos anterior e inferiormente e pêlos pretos na parte posterior e superior. Pré-escudo e escudo pretos e brilhantes exceto nas bordas laterais e na parte posterior do escudo que são amarelo-alaranjadas; o revestimento piloso é preto e denso, exceto nas bordas laterais onde os pêlos são amarelo-alaranjados. Escutelo preto na face superior e amarelo-alaranjado na face inferior, revestido de pêlos pretos. Postnoto castanho-escuro, exceto

nos lados que são amarelados. Pleuras amarelas e revestidas de pêlos amarelo-alaranjados, exceto nos escleritos basais da asa e no anapleurotergito onde os pêlos são predominantemente enegrecidos.

Pernas. — Coxas e trocânteres anteriores e médios amarelados, com manchas irregulares castanhas; posteriores pretos, com manchas amarelas, havendo uma muito nítida na parte distal da face externo-posterior do trocânter posterior. Fêmures anteriores e médios com a cabeça e certa extensão da face interna castanhas e o restante preto. Tíbias e tarsos pretos. Revestimento piloso das pernas preto, exceto na metade distal da face interna da tíbia anterior onde os pêlos são amarelos.

Asa (Fig. 1) castanho-escuro com uma faixa transversal hialina na metade distal, faixa esta que tem as bordas irregulares e se torna menos nítida na borda posterior da asa; pequenas manchas hialinas são vistas sobre a parte distal de *Rs* e no ápice da célula *R*₅, sendo a secção basal de *M* e *Cu* orlada de claro. Nervuras castanhas-escuras, exceto as porções de *C*, *R*₁, *R*₂₋₃ e *R*₄₋₅ compreendidas na faixa hialina, que são amarelas. Calípteros enegrecidos e com pêlos pretos.

Balancins. — Castanhos com pólen acinzentado.

Abdomen. — Castanho-escuro, exceto no I esternito que é manchado irregularmente de amarelo e na base do II esternito onde há duas manchas amarelas arredondadas; tergitos com pólen ocráceo que lhes tira o brilho e esternitos brilhantes; revestimento piloso castanho.

M a c h o : Desconhecido.

Localidade típica: Via Anhanguera, São Paulo, Estado de São Paulo, IV-1946 (Barretto col.).

Tipo: Holótipo ♀ na coleção do Departamento de Parasitologia da Faculdade de Medicina da Universidade de São Paulo.

Rhoga xanthoprosopa, nov. sp.

M a c h o. — Dimensões: Comprimento do corpo: 8,4 mm; comprimento da asa: 7,2 mm; largura da asa: 2,5 mm.

Cabeça. — Hemisférica, mais larga que o tórax. Olhos muito grandes e revestidos de pêlos amarelos, curtos e esparsos. Vértice e fronte estreitos com as bordas ligeiramente divergentes para a parte anterior; parte posterior muito saliente, amarelo-alaranjada, brilhante e com pêlos pretos e amarelos esparsos; parte anterior plana, amarela-brilhante, glabra na porção média e com pêlos amarelos nas bordas laterais. Calo ocelar saliente, preto e brilhante, com três ocelos do mesmo tamanho, afastados uns dos outros e de cor amarela. Face larga, com as bordas divergentes até a parte média e convergentes daí até a margem epistomal, convexa superiormente, mais ou menos plana na parte média e de novo convexa inferiormente; é amarela, brilhante e glabra na maior parte da sua extensão e acinzentada e revestida de pêlos amarelos e brancos nas partes laterais e inferior. Occipício amarelo e brilhante na parte superior, mas glabro no resto da sua extensão e inteiramente revestido de pêlos amarelos.

Antenas implantadas muito acima do meio da cabeça em um pequeno tubérculo enegrecido e brilhante. Segmentos antenais com os seguintes comprimentos relativos: 5,0:1:2,6; I segmento cilíndrico, amarelo internamente e castanho externamente, e revestido de pêlos pretos e amarelados; II cônico, castanho-amarelado e com pêlos pretos e amarelados; III ovóide achatado, castanho e com pólen amarelado. Arista mais longa que o III segmento, nua, amarela no quarto basal e enegrecida na parte restante.

Partes bucais pequenas, amarelas e com pêlos amarelos.

Tórax. — Úmeros amarelos e com pêlos amarelos. Pré-escudo e escudo amarelos com manchas enegrecidas assim dispostas; uma faixa mediana longitudinal que se inicia larga na borda anterior do pré-escudo, estreita-se progressivamente até a sutura transversa e depois se alarga bruscamente terminando larga no meio do escudo; duas pequenas manchas laterais pré-suturais ovulares e oblíquas; duas manchas laterais pós-suturais,

maiores em forma de cunha com a base anterior, que se estendem até os ângulos do escutelo; uma mancha semilunar pré-escutelar e duas manchas irregulares supra-alares; revestimento piloso preto ou castanho-escuro sobre as manchas escuras e amarelo-alaranjado nas áreas amarelas; pêlos amarelo-esbranquiçados são vistos ao longo da sutura transversa e entre a mancha preta mediana e as laterais pré-suturais. Escutelo mais ou menos semilunar, com ligeira emarginação na borda posterior, sem espinhos ou tubérculos, amarelo e revestido de pêlos pretos. Pósnoto brilhante, preto na parte média e amarelado nas partes laterais. Pleuras brilhantes com manchas enegrecidas ou castanhas ocupando a parte posterior e inferior do mesanepisterno, a parte inferior do mesocatepisterno, a maior parte do mesanepímero, meropleurito e anapleurotergito; áreas restantes amarelas; revestimento piloso amarelo.

Pernas. — Anteriores e médias com o fêmur curvo, algo dilatado sub-basalmente; tíbias fusiformes, 1 segmento tarsal anterior espessado, todos os segmentos amarelo-alaranjados; revestimento piloso amarelo-alaranjado, sendo os pêlos mais longos e eriçados na face externa das tíbias e tarsos. Posteriores com a coxa amarela, tendo algumas manchas castanho-amareladas, revestidas de pêlos amarelos e pretos; fêmur recurvado com dilatação sub-basal e estrangulamento submediano pouco acentuado, amarelo-alaranjado, com mancha castanha clara irregular na parte sub-basal e revestido de pêlos amarelo-alaranjados, que se mostram mais longos e eretos na face externa, principalmente na metade apical; tibia curva delgada na base e espessando-se até além da parte média onde há um sulco muito acentuado e irregular que a circunda completamente, simulando uma articulação dos dois-terços basais com o terço distal, sendo este espessado, porém menos que a porção subjacente; a cor é amarelo-alaranjada na face interna e castanho-amarelada na face externa, tornando-se enegrecida ao nível do sulco acima referido; revestimento piloso amarelo e reclinado na face interna e preto, longo e ereto na face externa; tarso com o I segmento alongado e espessado e os outros normais, todos de cor amarelo-alaranjada e revestidos de pelos amarelos, que são mais longos e eretos na face externa.

Asa. — Longa, estreita e homogênea e finamente revestida de microtríquios. Costa com pêlos implantados em micro-tubérculos; *rm* atingindo a célula 1a. M_2 muito próximo da base desta; M_1 mais ou menos retilínea e muito pouco recorrente; nervuras apendiculares ausentes; “vena spuria” pouco nítida. Coloração geral amarela, mais acentuada ao longo da borda anterior; faixa larga enegrecida, de bordas irregulares e mais escura na parte anterior que na posterior, cortando transversalmente a asa na sua parte média. Nervuras amarelas, exceto as partes compreendidas na faixa escura, que são pretas. Calípteros hialinos e com franja amarelada.

Balancim. — Amarelo.

Abdomen. — Alongado, com cinco segmentos visíveis, estreito na base, alargando-se até o ápice do II segmento e daí por diante diminuindo de largura progressivamente, convexo superiormente e côncavo inferiormente; I e II tergitos amarelos e mais ou menos transparentes; III com a borda anterior, uma faixa mediana longitudinal estreita e uma larga mancha lateral mais ou menos triangular e de base voltada para a frente, pretas; IV com uma mancha mediana e uma mancha lateral irregulares pretas; V castanho-amarelado; resto do abdomen amarelo; revestimento piloso amarelo exceto no meio do IV tergito, onde há uma larga mancha triangular de pêlos pretos; esternitos amarelos, tornando-se acastanhados para a parte posterior do abdomen e revestidos de pelos amarelos.

Fêmea : Desconhecida.

Localidade típica: Faz. Fortaleza, Arceburgo, Estado de Minas Gerais, XII-46 (Barretto col.).

Tipo. — Holótipo ♂ na coleção do Departamento de Parasitologia da Faculdade de Medicina da Universidade de São Paulo.

Discussão. — *Rhoga xanthoprosopa*, nov. sp. distingue-se de *Rhoga lutescens* Walk., 1857, porque esta possui uma larga mancha preta no mesonoto e a extremidade da asa infuscada; distingue-se de *Rhoga mellea* (Curran, 1940) pela disposição das manchas pretas do mesonoto e porque esta tem as pleuras amarelo-ferrugíneas com manchas pretas apenas acima da coxa posterior e na metade posterior do mesanepisterno e a asa com o ápice infuscado e M_1 fortemente recorrente.

Distingue-se de *Papilliomyia* (= ? *Rhoga*) *sepulchrasilva* Hull, 1937, porque esta tem os olhos glabros, asa com M_1 recorrente e com mancha basal, e manchas do tórax com disposição diversa.

Distingue-se, enfim, de *Microdon* (= ? *Rhoga*) *maculatus* Shannon, 1927, porque este tem a metade anterior do mesonoto quase inteiramente castanho-escura; abdomen globoso, amarelo e com faixas mediana e laterais longitudinais escuras; asa com duas faixas escuras transversais.

Bibliografia.

- Crampton, G. C., 1942, The External Morphology of the Diptera. — Connecticut State Geol. & Nat. Hist. Surv., Bull. no. 64, pp. 10-165.
- Curran, C. H., 1940, Some new Neotropical Syrphidae (Diptera). — Amer. Mus. Novit., no. 1086, 14 pp.
- Curran, C. H., 1941, New American Syrphidae. — Bull. Amer. Mus. Nat. Hist., 78: 243-304.
- Hull, F. M., 1937, New Species of Exotic Syrphid Flies. — Psyche, 44: 12-32.
- Shannon, R. C., 1927, A Review of the South American Twowinged flies of the family Syrphidae. — Proc. U. S. Nat. Mus., 70: 1-34.
- Walker, F., 1857, Characters of Undescribed Diptera in the Collection of W. W. Saunders. — Trans. Ent. Soc. London, N. S., 4: 119-158.

Notes on Neotropical Mayflies. Part II. Family Baetidae, Subfamily Leptophlebiinae.

By Jay R. Traver, State College, Amherst, Mass.

(With 22 text figures)

This paper is a continuation of Part I of the same series (Rev. Ent. 1946, pp. 418-436), and deals with adult forms of Neotropical Leptophlebiine mayflies of the genera *Thraulius*, *Choroterpes* and *Hermanella*. For a discussion of other genera of this subfamily, see Part I.

Genus *Thraulius* Eaton

M of the hind wing not forked. Costal angulation of hind wing usually acute; *Sc* ends in this angulation; cross veins relatively few in number. In the fore wing, the outer fork of R_4 and R_5 may sag somewhat to rearward, R_s being somewhat bowed at its union with R_4 . Usually a single pair of cubital intercalaries, diverging toward the margin. Forceps base entire. Penes usually more or less conical, bearing each a slender projection. A pair of projecting processes is present between forceps base and penes, in some species, but is absent in others. Thirteen species of *Thraulius* are at present recognized from the Neotropical region. In *caribbeanus* Trav.¹, and to a lesser extent in the new species *roundsi*, the penes are reminiscent of those structures in certain species of Nearctic *Paraleptophlebia*.

Thraulius bradleyi Ndhm. and Murphy²

Fig. 142 of Neotropical Mayflies shows the penes and forceps adequately. The holotype slide seems to show, in addition, two short blunt projections between forceps base and penes; which however are difficult to determine.

Thraulius maculatus Ndhm. and Murphy²

A new drawing of the genitalia is presented in Fig. 1. The slide with genitalia of the holotype of this species could not be located. This figure was prepared from one of the paratypes.

Thraulius primanus Eaton

Four male imagos in the private collection of the writer may well be representatives of this species. The description given by Eaton for the male of *primanus* fits these specimens very well, with two exceptions: (1) length of wing; in *primanus* male, 9

mm., in my specimens, 7-8 mm.; (2) the extent of the brownish tinge on the fore wing; in *primanus*, "fore wing in its basal half, and in marginal area up to bulla, faintly tinged with very light pitch brown" (Eaton)³; in my specimens, brown tinting limited to extreme base except in costal and subcostal spaces, where it is quite uniform from base to apex except in region of bulla. It is difficult to be certain of the extent of this brown tinge except on the costal margin. Its amount is also variable in the four specimens. Hind wing uniformly brown-tinted, as in *primanus*; appearance as in Fig. 2. Since the determination is not positive, owing to the fact that the abdomen of the type male is now missing (Kinnins, 1934)⁴, the following additional notes on my specimens are presented. The males from which this description is drawn are in alcohol. — Antennae pale brown. Turbinate eyes red-brown in upper half, black below. Lateral portions of pronotum outlined in black, most distinct on outer border. Black line on suture above and back of fore leg; black markings also at bases of middle and hind legs. Black shading on coxae; black apical ring on trochanter of hind leg. All legs similar in coloration, and as indicated by Eaton. Middle abdominal segments paler and almost transparent on anterior margins. Sternites likewise narrowly paler next to pleural fold. Tails blackish at extreme base, becoming gradually paler apically. Joinings noticeably darker only on four or five of the most basal joints. Genitalia as in Figs. 3 and 4. As noted by Eaton, the forceps are stout, with an oval apical joint. Specimens from Rio Pedregoso, Costa Rica, Feb. 1939. D. L. Rounds, Coll.

Thraulius demerara, sp. nov.

Male imago. Body $4\frac{1}{2}$ mm.; wing 5 mm. In alcohol. Turbinate eyes very large, oval, contiguous apically; in color orange to orange-brown. Head dark red-brown. Thoracic notum reddish brown; pleura yellowish with black markings. Sternum yellow, unmarked. Fore femur yellow, paler at tip; purplish brown line along lower margin; partial subapical band of same color;

genitalia (holotype); details of, before making permanent mount. — Fig. 14. *Choroterpes bilineata*. Hind wing; female, from Moengo, Boven, Surinam. — Fig. 15. Idem. Male genitalia, subimago (in vial with allotype). — Fig. 16. *Choroterpes atramentum*. Hind wing. — Fig. 17. Idem. Male genitalia (subimago). — Fig. 18. Idem. Freehand sketches of (a) details of penes, male subimago, and (b) subanal plate of female. — Fig. 19. *Choroterpes vinculum*. Hind wing. — Fig. 20. *Hermanella incertans*. Variations in hind wing. (a) Specimen from Mackenzie; (b) from British Guiana, no locality label; (c) from Tumatumari. — Fig. 21. Idem. Male genitalia; specimen from Mackenzie. — Fig. 22. Idem. Male genitalia; specimen from British Guiana. No locality given.

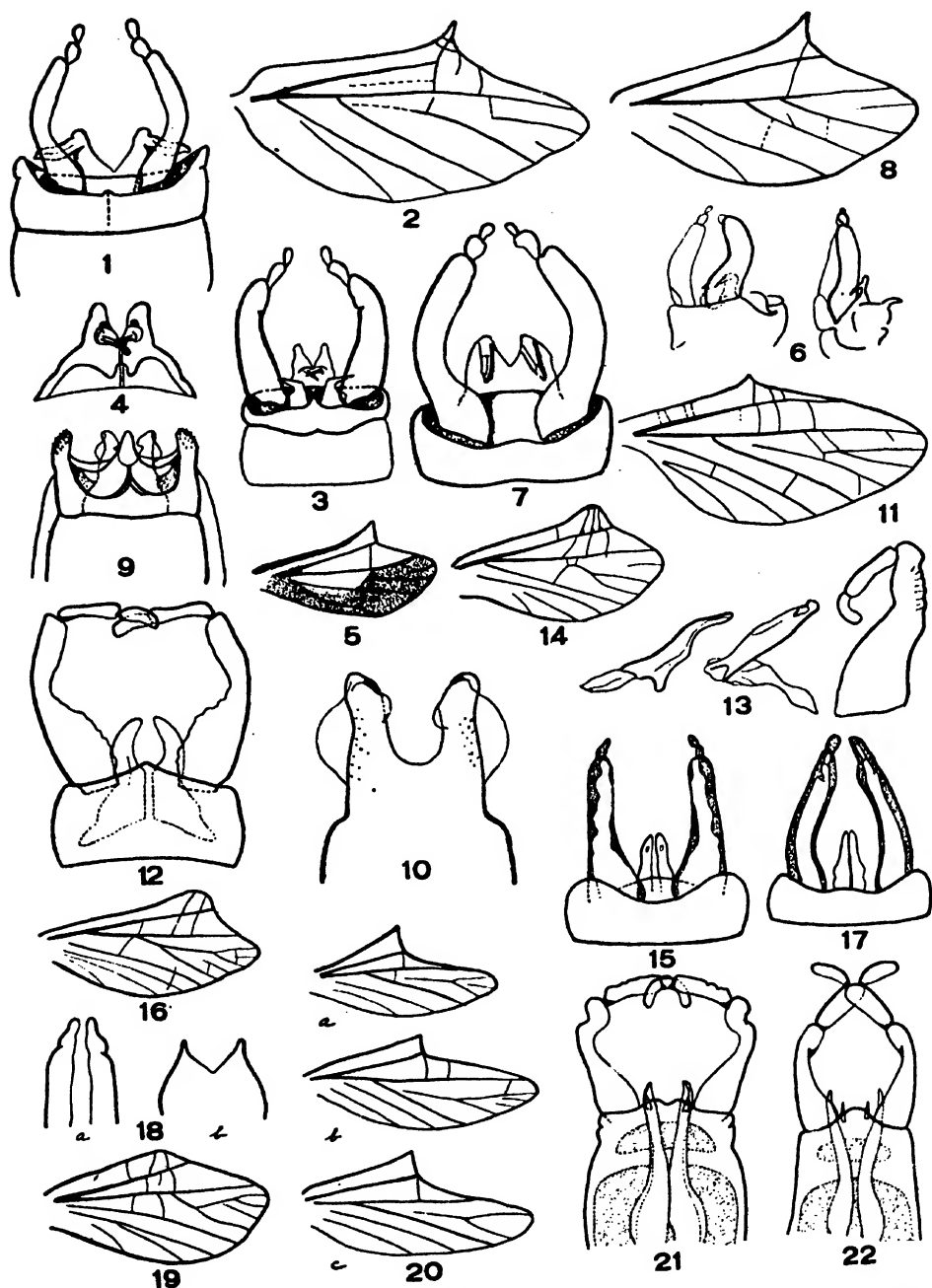


Fig. 1. *Thraulius maculatus*. Male genitalia (paratype). — Fig. 2. Idem. Hind wing. — Fig. 3. Idem. Male genitalia. — Fig. 4. Idem. Penes of same, enlarged. — Fig. 5. *Thraulius demerara*. Hind wing. — Fig. 6. Idem. Male genitalia; lateral aspect, before making permanent mount. — Fig. 7. Idem. Male genitalia, ventral aspect; from permanent mount. — Fig. 8. *Thraulius roundsi*. Hind wing. — Fig. 9. Idem. Male genitalia (forceps missing). — Fig. 10. Idem. Penes of same, enlarged. — Fig. 11. *Choroterpes emersoni*. Hind wing (holotype). — Fig. 12. Idem. Genitalia, male (holotype) treated with potash. — Fig. 13. Idem. Male

narrow dark pencilings on each margin apically. Knee yellow. Fore tibia purplish brown in basal half; apical half white, unmarked. Tarsus white. Fore femur slightly more than $1/2$ length of tibia. First tarsal joint more than $1/3$ but less than $1/2$ length of tibia. Tarsal joints in descending order: 1, 2, 3, 4. Complete subapical band on second femur; quite similar to first but somewhat paler yellow. Tibia purplish brown except at apex; tarsus white. Hind femur pale yellowish at base and apex; wide purplish brown band occupies fully half of joint; brown mark on upper apical margin. Tibia and tarsus as in second leg. Black streak at apical margin of hind coxa. Membrane of costal margin of fore wing very faintly amber-tinged; hyaline elsewhere. Cross veins of costal space, beyond base, confined to stigmatic area. 9 or 10 weakly developed, strongly slanted stigmatic veins, which do not extend to *Sc*. Longitudinal veins pale amber. Costal margin of hind wing, to tip of angulation, and base of *Sc*, blackish; costal space, however, colorless except at extreme base. Almost entire posterior half of wing membrane pale smoky brown (paler in middle triangular space below *R*). This wing as in Fig. 5. Abdominal tergite 1 opaque, purplish brown; tergites 2 to 5 translucent, pale yellowish, with wide apical band of purplish brown occupying about half of each. Sternites 1 to 5 translucent, yellowish. Segments 6 to 9 opaque, purplish brown. Basal half of sternite 6, and very narrow margin on succeeding sternites, yellowish. Genitalia as in Figs. 6 and 7; yellowish brown in color. No projections from subanal plate. Extreme basal region of tails, also joinings of first four or five segments, purplish brown. Remainder of tail whitish, joinings not darkened.

Female imago. Body 5 mm.; wing $5\frac{1}{2}$ mm. In alcohol. Head purplish brown. Thorax red-brown, pleura and sternites somewhat paler than notum. Legs marked as in male, but dark areas less extensively pigmented. Wings as in male. Abdominal tergites pale purplish brown; posterior margins and postero-lateral angles deeper brown. Sternites 1 to 5 yellowish; wide posterior band of pale smoky brown on each, color deepening slightly on 5. Sternites 6 to 9 smoky brown. Subanal plate red-brown, paler basally; truncate at tip.

Holotype: Male imago. Mackenzie, Demerara River, British Guiana. Collected by Cornell University Entomological Expedition, June 24, 1927. In Cornell Collection.

Allotype: Female imago. Kwakoepron, Saramacca River, Surinam. C. U. Expedition, June 12, 1937. In Cornell Collection.

Paratypes: Male imago (parts on slide); same data as holotype; 1 male and 1 female imago; female, same data as holotype, male from Bartica, British Guiana, H. S. Parrish, Coll; no date. In private collection of writer.

This species seems closely allied to *convexus* Sph.⁵ Unfortunately the size of that species is not given, nor are genitalia nor hind wing figured. Distinguished from *convexus* by: color and markings of legs; darker thorax; smoky area of hind wing. It is smaller than *misionensis* Esb. Pet.⁶, also the abdominal segments are more extensively darkened than in that species.

Thraulius roundsi, sp. nov.

Male imago. Body 5 mm.; wing 5 mm. In alcohol. Turbinate eyes moderately large, contiguous apically; in color orange-brown. Head and antennae yellowish brown. Entire thorax dark red-brown. Prothoracic notum margined laterally with black; a small median and larger lateral dark dots. Legs missing. Posterior half of fore wing missing. Membrane of fore and hind wings amber-tinged. Venation amber-brown. In costal margin of fore wing, *very faint* indication of 2 or 3 cross veins before bulla; 1 at bulla; 3 or 4 very weak slanting cross veins just beyond bulla; 6 to 8 stronger stigmatic cross veins, also slanting, of which 2, on one wing, are incomplete. Cross veins quite numerous (7 to 9 in subcostal space; 8 in space behind *Rs*; 7 or 8 in next space following). Extreme basal area, basad of humeral cross vein, dark brown. Hind wing shown in Fig. 8. Abdominal segments 1 to 6, and basal half of 7, translucent yellowish to olive brown. Narrow paler band basally, and narrow dark posterior margins on 2 to 7 (on 7, dark band occupies fully half of segment). Pleural fold dark brown. Indications of faint paler median line on tergites, with darker dot at median posterior margin. Faint brownish spot in antero-lateral angle of these tergites. On sternites, paler line adjoining pleural fold. Short black stigmatic dash present, on each of these segments. Segments 8 and 9 opaque, rather dark olive brown. Tails missing. Genitalia (forceps missing) as in Figs. 9 and 10. Penes reminiscent of certain North American species of *Paraleptophlebia*.

Female imago. Body 5½ mm.; wing 6 mm. In alcohol. Head yellow; posterior margin gray. Antennae light yellowish brown. Thorax bright red-brown; paler purple-tinged area at wing roots; mid-region of sternum paler. Thoracic pronotum translucent, yellowish, dark-margined and with traces of dark lateral dots as

in male. Legs missing. Wings as in male, but cross veins very indistinct. Abdomen yellowish (eggs impart an orange tinge). Dark stigmatic dots present, also dark dot on pleural fold nearer basal margin, on segments 3 to 7. Posterior margins of tergites narrowly purplish brown. Gray shading across mid-area of each tergite; traces of pale median line, also of narrow dark submedian line, interrupted at margins. Indistinct dark triangle in postero-lateral angle. Subanal plate triangular, extending beyond 10th segment; apex obtuse (not retuse or notched, as is usual in this genus).

Holotype: Male imago. Rio Pedregoso, Costa Rica. Feb. 1939. D. L. Rounds, Coll. In private collection of the writer.

Allotype: Female imago. Same data.

This species is placed tentatively in *Thraulius*, on the basis of the structure of the hind wing. The genitalia are so different from most species of *Thraulius* that its affinities with other species cannot be determined. It may not belong in this genus.

Genus *Choroterpes* Eaton

M of the hind wing not forked. Costal angulation usually blunt, varying from basad of the center to a position between center and apex. Cross veins usually few in number, but in the unique species *nervosa* Etn.³ these are relatively numerous. Perhaps it is usual for the female wing to have more cross veins than the male, in some species. *Sc* extends to a point just beyond the costal angulation. In the fore wing there is usually a sag in the outer fork; *Rs* may be slightly bowed at its union with *R*₄. Cubital intercalaries variable in number from 2 to 3 or more; if several are present, they may be attached to one another basally, either directly or by cross veins. Forceps base entire. Forceps three-jointed, the first joint much widened basally. Penes elongate, simple, without processes of any sort. Four Neotropical species of this genus have been described: *inornata* Etn. and *nervosa* Etn., from Central America; *emersoni* Ndhm. and Murphy and *bilineata* Ndhm. and Murphy, from South America. Two new species are described below.

Choroterpes emersoni Ndhm. and Murphy.

Examination of the type material in the Cornell University Collection reveals the previously noted fact that the "allotype" female, characterized by the presence of a long ovipositor, belongs to the genus *Hagenulopsis*, species *minutus* Spth. This female,

minus legs and wings, along with the head of a male of the same species, plus several legs and tails, is mounted on a slide labeled "Female type — *Choroterpes emersoni*". The legs, — three fore legs and two others, of either the second or third pairs, — agree well with the description given for these parts by Needham and Murphy, under *Choroterpes emersoni*. On another slide are the wings of the male *Choroterpes emersoni*. The hind wing is shown in Fig. 11. The genitalia, remounted after treatment with potash, are shown in Figs. 12 and 13. These are evidently the basis for Fig. 145 of Neotropical Mayflies. No trace of the body of the male holotype can now be found. In a vial labeled *Choroterpes emersoni* are two males of *Hagenulopsis minutus*, also several nymphs. The latter are probably *Thraulodes*; the presence of hind wings precludes placing them in *Hagenulopsis*. In still another vial in the Cornell Collection are two male subimagos of *Choroterpes*, from Bartica Division, British Guiana, Mch. 22, 1917. Comparison of venation and genitalia of these two males with genitalia and figures of the wings of the type material indicates that they belong, without much doubt, to *C. emersoni*. However, since certain markings on the bodies of these males do not accord well with the original description of *emersoni*, a description of them is given.

Male subimago about to transform. In alcohol. Body $4\frac{1}{2}$ to 5 mm.; wing $4\frac{1}{2}$ to 5 mm. Turbinate eyes very large, oval, contiguous apically; yellowish. Antennal filament pale yellowish. Thorax light red-brown above, paler below; on each side of pronotum, a large triangular area outlined in black. Anterior and lateral margins of mesonotum outlined in dark red-brown; a transverse line of same color across anterior fourth of sclerite. Legs missing from one specimen; on another, yellowish without dark markings. Basal and middle abdominal segments semi-transparent, yellowish; basal segment opaque, light red-brown. Faint indications of dark lineations along pleural fold, and of pale submedian and lateral dashes. Ganglionic areas slightly opaque. *No darker markings* on posterior margins of segments. Wings very similar to type of *emersoni*. Tails missing. One specimen has darker red-brown thorax, abdomen likewise darker, basal and middle segments being light red-brown; posterior margins of tergites very narrowly darker; faint dark shading laterally on tergites and along pleural fold. A tail, in same vial, is very pale reddish brown at base, yellowish beyond; joinings not darkened.

Choroterpes bilineata Ndhm. and Murphy

A female imago which seems to be of this species was taken by the C. U. Entomological Expedition at Moengo, Boven, Cottica River, Surinam, in May 1927 (P. P. Babi, Coll.). Wings as in the original description except for the addition of 5 small brown blotches before bulla, 1 at bulla, and 4 between bulla and stigma, at costal margin of fore wing. Hind wing as in Fig. 14. Subanal plate has a deep triangular excision at middle line. Genitalia of the allotype, a male subimago, as shown in Fig. 15. Very little detail can be determined from this specimen.

Choroterpes atramentum, sp. nov.

Male subimago (2 specimens). In alcohol. Body $6\frac{1}{2}$ - $7\frac{1}{2}$ mm.; wing 7 - $7\frac{1}{2}$ mm. Entire body yellowish. Two blackish submedian lines extend backward from anterior margin of pronotum to, but not including the 10th tergite. These lines are discontinuous in middle areas of basal and middle tergites; present only as a short mark at anterior margin on tergites 6 and 7; present in median area only, of tergite 9; but wide, prominent and extending almost entire length of sclerite, on tergite 8. Interrupted oblique lateral dashes from dark mark at posterior margin, on tergites 2 to 5. Posterior margin of mesonotum outlined narrowly in black. Submedian black dashes on posterior margins of tergites 1 to 6, the median and lateral portions of these tergites uncolored. Fore legs pale yellowish, slender; a narrow black longitudinal streak on inner margin of femur, distally; also very short dark dash on same margin near base. Middle and hind legs missing. Humeral cross vein wholly pale. 5 blackish-brown blotches on costal margin before bulla, at location of as many basal costal cross veins, these veins surrounded by yellowish brown. 2 cross veins between bulla and stigma, marked like basals. 9 to 11 slanting stigmatic cross veins, one or more of which may be forked toward costal margin; first four of these toward bulla are slightly thickened, blackish brown, and brown-margined; remaining stigmatic veins pale yellowish except for indistinct darker shading at base of fourth from bulla. Costa yellowish, also Sc and Rs as far as stigma; Sc and Rs beyond bulla black, narrowly margined except at apex. Subcostal space below stigma fawn-colored or yellowish orange, the cross veins distinct but not margined. Cross veins at bulla in third space down from costa widely margined with blackish brown, appearing like an

ink blot. Cross veins basad to this in same space more narrowly dark-margined; those toward apex very dark, very narrowly margined toward R_s only. An oblique dark brown band extends across apex of this space and into upper part of space immediately below it; in third space, area toward apex from dark band is yellowish brown. 3 cross veins in space next below bulla, also between R_4 and R_5 and M_1 , darkened and distinct, as are also to a lesser degree 3 others in disc basad of these. Several in same spaces toward outer margin, and 2 between branches of M , faintly darkened. Other veins pale, as are all in hind wing. Hind wing shown in Fig. 16. Genitalia are shown in Figs. 17 and 18.

Female subimago. Body 8 mm.; wing $8\frac{1}{2}$ mm. Markings as in male. On occiput, two dark spots, one near each eye. At apex of coxa, also of trochanter of fore leg, a very narrow dark edging. Middle leg unmarked, third missing. Fore tibia at least 1 and $\frac{1}{4}$ times length of femur. Subanal plate deeply excised in middle area, as in Fig. 18.

Holotype: Male subimago (smaller specimen). Rio Pedregoso, Costa Rica. Feb. 1939. D. L. Rounds, Coll. In private collection of writer.

Allotype: Female subimago. Same data.

Paratype: Male subimago (larger specimen). Same data.

This species, allied to *bilineata*, differs from it as follows: humeral cross vein not darkened; distinct purplish black blotch at bulla, directly below subcosta; more extensive dark markings on veins of fore wing; certain differences in extent of dark abdominal markings.

Choroterpes vinculum, sp. nov.

Female imago. In alcohol. Body 6 mm.; wing 7 mm. Almost entire body very dark red-brown. Head yellowish; much black mottling on occiput, leaving pale median line and pale transverse lateral area behind each ocellus. Pronotum pale red-brown; anterior margin narrowly black; median line and wide central area on posterior margin blackish. Only stubs of the legs remain; these are light red-brown; coxa darker brown at base, apex dark-margined; trochanter with indistinct dusky shading. Slightly paler area around each leg base; diffuse dark spot above third coxal base, more extensive black markings above base of second coxa. Cross veins of fore wing distinctly margined, some rather widely. 5 rows of cross veins, of which the 3rd row from the base is interrupted, seem to extend across wing. Cross veins at bulla in first four spaces especially prominent because of

margining. 2 basal costal cross veins rather close to humeral vein; 2 at bulla; 1 between bulla and stigmatic area. At least 8 slanting stigmatic cross veins (tips of both wings damaged), of which the first 4 beyond the bulla are enveloped in a single brown cloud; 3rd and 4th of these joined by another partial cloud, on one wing. All veins brown; all important cross veins margined. Humeral cross vein blackish brown. In hind wing, darker area at base of principal veins; all veins distinct, but paler than in fore wing; *no* cross veins margined. Hind wing as in Fig. 19. Abdomen only slightly paler below. Both tergites and sternites more or less shaded with blackish. Posterior margins of all segments distinctly darkened, these bands widest on segments 1 and 2, and on tergites 3 and 4. Dark stigmatic markings. On middle tergites, indistinct paler submedian dashes at anterior margin; on same tergites traces of pale median line in anterior half. Antero-lateral areas of tergites tend to be paler, light reddish to yellowish brown. Tails missing. Subanal plate slightly and rather roundly excised on posterior margin.

Holotype. Female imago. Rio Pedregoso, Costa Rica. Feb. 1939. D. L. Rounds, Coll. In private collection of the writer.

Genus *Hermanella* Needham and Murphy

Hermanella belongs to that subdivision of Section B in which are included several genera of Neotropical mayflies thus far reported from the West Indies only. A discussion of *Hagenulus* and its allies will be found in the writer's Mayflies of Puerto Rico⁷, likewise in Spieth's recent article.⁵ Note that a typographical error occurs on pp. 6 of the former publication, where it is stated that *Hagenulus monstratus* Etn. occurs in Bermuda, instead of Burma, its real habitat. Spieth⁵ has described the imago of *Hermanella*, previously known only in the nymphal stage. A well-developed ovipositor is borne by the female of *Hagenulus* and *Borinquena*, and a shorter by *Neohagenulus* females; but no such structure occurs in *Hermanella*. *M* of the hind wing is not forked. Costal angulation of this wing acute, much more pronounced and sharp-pointed than in *Thraululus*, but less so than in some species of *Hagenulus*; *Sc* ends at this prolongation. Cross veins very few. In the fore wing, no sag in the outer fork (*R*₄ and *R*₅); cross veins relatively few in number, with none near the outer margin, in Spieth's figure (Fig. 19⁵). Fig. 133, however, of Neotropical Mayflies² shows many cross veins, of which the

usual number are near the outer margin. Specimens in the Cornell Collection, from British Guiana, agree well with Spieth's figure. Two cubital intercalaries, divergent toward the margin; according to Spieth's figure, these veins are united near the base, ending at point of union, but in the specimens in the Cornell Collection, each intercalary joins a cross vein, ending at that point, but is not joined directly to the other intercalary. Genitalia distinctly reminiscent of the same structures in *Hagenulus*. Two species have been described in this genus: *thelma* Ndhm. and Murphy, and *incertans* Spth.

Hermanella thelma Ndhm. and Murphy

(*Hermanella velma* Spth., 1943).

Known in the nymphal stage only, this species was described from two nymphs taken at Iguazu Falls, Argentina (a typographical error on p. 39 of Neotropical Mayflies locates these nymphs in Chile). The nymph shown in Fig. 129 of that paper probably does not belong to this genus. The species is referred to incorrectly by Spieth as *H. velma*.

Hermanella incertans Spth.

Among specimens collected by the C. U. Ent. Expedition in British Guiana are several male and female imagos and some subimagos, which are probably of this species. Some were taken at Mackenzie, the Demerara River, June 23, 1927; others at Tumatumari, the Potaro River, June 26, 1927; still others bear neither locality label nor date, at the present time. Examination of these specimens shows a certain amount of variation in the intercalaries of the fork of R_2 and R_3 , in the hind wing; three of these variations are shown in Fig. 20. The wing in 20a is from a specimen at Mackenzie; 20b, from one of the specimens which bear no locality label; 20c, from Tumatumari River. As noted above, the cubital intercalaries of the fore wing do not unite toward the base, but are connected each separately to a cross vein; the second and third intercalaries between R_2 and R_3 of this wing tend to run together at their bases, and are connected to the fourth intercalary by a short stem. Unfortunately none of these specimens is complete, and all are much faded by long immersion in alcohol, hence it does not seem advisable to describe the female. Males: body $3\frac{1}{2}$ to 4 mm.; females: body $3\frac{1}{2}$ to 4 mm.; unattached wings, 4 mm. Whether or not the slight

differences in genitalia are sufficient for separation of these specimens into two species, is problematical. Since Spieth did not give the size of his species *incertans*, it is also difficult to decide whether or not the Cornell specimens represent *incertans* or some allied species.

Hermanella sp.

Incomplete male and female imago of a slightly larger species occur along with the above-mentioned specimens. Bodies and wings of the females measure $4\frac{1}{2}$ mm.; heads almost wholly blackish. All the males lack the apical portion of the abdomen; the basal portion seems more heavily and regularly shaded with black, and the head and eyes somewhat larger than in the specimens here referred to *incertans*. These may represent the true *incertans*, or the species referred to by Spieth, — "a single male imago from Kabelstation, Makambi-kreek, Surinam, September 27, 1938", — which he considers of a different species than *incertans*. Details of the differences are unfortunately not stated, in Spieth's article, nor is the size given.

References

1. Traver, 1943, Bol. Ent. Venez. 2, p. 79.
2. Needham and Murphy, 1924, Bull. Lloyd Lib. 24, Ent. Ser. 4, pp. 1-79.
3. Eaton, 1892, Biol. Centr. Americana, Neur., Ephem., pp. 7 and 22.
4. Kimmins, 1934, Ann. Mag. Nat. Hist. Ser. 10, 14, p. 343, Fig. 7.
5. Spieth, 1943, Amer. Mus. Nov. 1244, pp. 1-13.
6. Esben-Petersen, 1912, Deutsch. Ent. Zeitsch., p. 339.
7. Traver, Jour. Agr. Univ. Puerto Rico 22, pp. 6-22.

Studies in the Melolonthine Scarab Beetle Genera of the American Continents. No. V. *Raysymmela*, a New Genus near *Symmela* Erichson.

By Lawrence W. Saylor,
Research Associate, California Academy of Sciences, San Francisco.

(With 7 figures)

This paper continues the series of generic studies in the North, South and Central American scarab beetles of the subfamily Melolonthinae. There is a fundamental difference between two groups of species at present placed in *Symmela* Erichson; these differences are the presence or absence of a suture between the propygidium and penultimate ventral abdominal sternite (hence whether the two are connate or free) as well as other characters as indicated:

1. Propygidium and penultimate (5th) abdominal sternite completely connate, usually with no trace of a suture between the two (very rarely a minute trace very lightly impressed at the basal part of the segment only); lateral abdominal carina paralleling elytral edge entirely lacking; fore tibia unidentate or bidentate; fore claws male dissimilar or not, the inner claw never tridentate; first front tarsal segments variable, often widened; thoracic disc uneven in some species (*instabilis* Er.) *Symmela* Erichson
- Propygidium and penultimate abdominal segment completely divided by a strong and complete sulcus; sides of abdomen with or without carinae paralleling the elytral edge; fore tibia tridentate or subtridentate; fore claws male very dissimilar, with the inner claw strongly tridentate in some species; first front tarsal segment very long and narrow (2/5 to 1/2 length of entire tarsus); thoracic disc evenly convex. *Raysymmela*, new genus

Raysymmela Saylor, new genus

Diagnostic characters: Similar to *Symmela* Erichson in many of the essential characters, differing mainly in the points of structure of the abdomen (ie. connate or not), and the modifications of the fore claws, the differences being summarized in the key above.

Genotype: *Symmela bruchi* Moser, from Uruguay and Argentina.

Other species already described and known by me to belong in *Raysymmela* are *Symmela pallipes* Blanchard and *Symmela curtula* Erichson, as well as the new species described herein.

Raysymmela huanuca Saylor, new species

Male: Small, elongate-oval. Thorax and elytra glabrous above, their lateral margins sparsely ciliate. Coloration mostly testaceous above, with black as follows: all edges of elytra, the black margin being much broader along suture and sides at about the middle; fore angles and anterior margins, as well as nearly all of thoracic disc black, with a small black spot each side towards middle of the lateral margin; head and thorax entirely black; legs castaneo-piceous; below castaneo-piceous, with pruinose cloudings on meta- and mesosternum, coxal plates and sides of abdominal sternites. Surface above highly iridescent. Antenna black, 8-segmented; segment 3 long, 4 nearly twice longer than 3d, 4th about four times longer than 5th; club deeply pitted and subequal to funicle in length. Clypeus semiquadrate in shape, sides nearly parallel, apex truncate and reflexed, fore angles narrowly rounded; clypeal disc smooth and impunctate in apical half, very finely punctate basally with several erect hairs; clypeal suture finely impressed, faintly sinuate. Front very finely punctate, vertex impunctate. Thorax not margined at middle base, very faintly longitudinally impressed, disc irregularly and very finely punctate, sparser at sides. Scutellum with several punctures at sides. Elytra with fine, equidistant striae; the intervals faintly convex and impunctate. Pygidium evenly convex, finely punctate with short suberect hairs, the punctures separated by 2-4 times their diameters, the hairs longer apically; disc not at all impressed along sides or base. Hind coxae covering first $4\frac{1}{2}$ segments of abdomen at middle, hind coxal plate large (as long as midtibia) and with short dense procumbent hair as well as two short coarse bristles at middle of outer lateral margin. Abdomen with 5th and 6th sternites subequal and longer than any of the preceding, each sternite with a single transverse row of very coarse and long bristles; 6th also with short procumbent hairs in apical half.

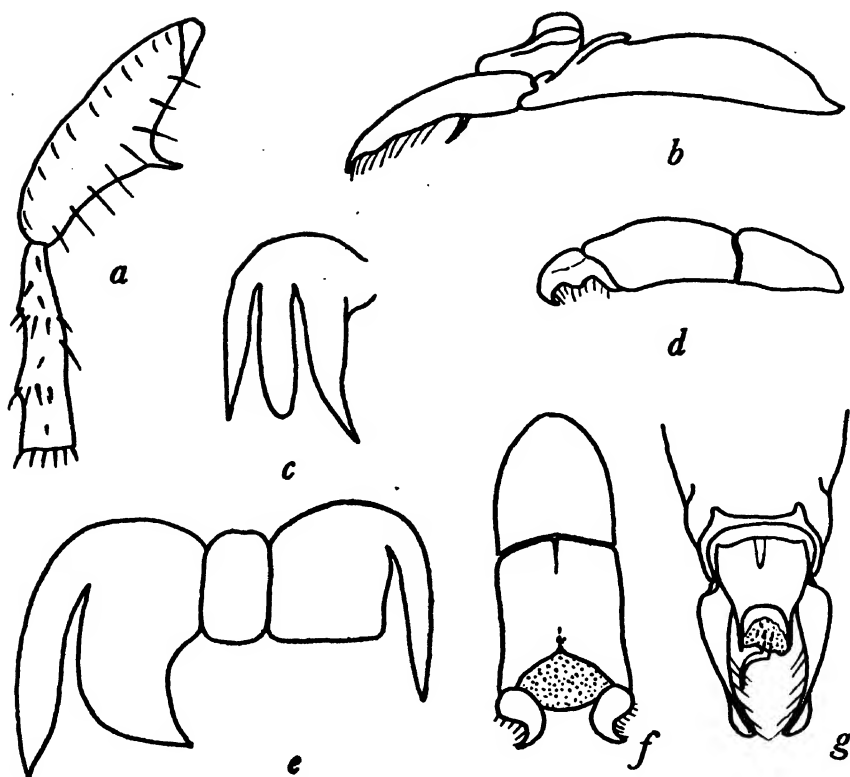


Fig. 1. (a) *R. curtula*, posterior leg, male. — (b) *R. bruchi*, lateral view male genitalia. — (c) *R. huanuca*, front, inner male claw. — (d) *R. curtula*, lateral view male genitalia. — (e) *R. curtula*, front male claw (en-face view), inner claw on the right. — (f) *R. curtula*, dorsal view male genitalia. — (g) *R. bruchi*, dorsal view male genitalia.

Fore tibia strongly tridentate; first segment fore tarsus very long and narrow, nearly as long as rest of tarsus; front claws very dissimilar, the outer strongly cleft, with the "upper" portion broader and no basal dilation; inner fore tarsal claw very strongly tridentate, the basal tooth the longest and narrowest and the whole claw twisted on its base (Fig. 1, c). Claws of hind and middle legs similar to each other and same in size and shape as the outer front claw. First segment hind tarsus very long, slightly longer than the next 3 segments combined. Length 5 mm. Width 2.7 mm.

The unique male holotype in the Saylor Collection is from Huanuco, Peru, sent to me by the collector Felix Woytkowski.

The male genitalia are different from those of *bruchii* (Moser) but in my single specimen were broken in dissection and thus are not figured, since they are somewhat incomplete now.

Raysymela bruchi (Moser)

Symmela bruchi Moser, 1924, Stettiner Ent. Zeitung, 84:120.

I have several specimens, determined by Moser, from Argentina, from whence the species was described. Differs especially from *huanuca* Saylor in the following points: the elytra are entirely rufotestaceous with faint apical piceous cloudings, varying to piceous with a large humeral umbo spot of testaceous, and with the legs and head, as well as the thorax black, with the front legs testaceous for the most part; clypeus more quadrate (nearly square) and the apex squarely truncate and more strongly reflexed; front claws exactly similar to those of *huanuca* and thus the two front claws greatly dissimilar and the inner strongly tridentate; thoracic disc evenly convex and a little more coarsely punctured; abdomen and pygidium more densely hairy; upper surface shining but not iridescent; third elytral interval usually a little broader than the second; male genitalia of different form (Fig. 1, b, g), though closely allied.

Raysymela pallipes (Blanchard)

Symmela pallipes Blanchard, 1850, Cat. Coll. Ent. 1, p. 85.

The single female of this species at present available to me is from "Yungas, La Paz, Bolivia, 1000 m.", determined by Ohaus and Moser. The species is similar to *huanuca* Saylor, except that the antenna is much smaller, all claws of all feet are similar in size and shape, the hind coxae reach back and cover only the first 1½ abdominal sternites at their centers, and the pygidium is very sharply gibbose and nearly pyramidal at middle disc; the large propygidium also has a short oblique sulcus at each side near basal angles.

Raysymela curtula (Erichson)

Symmela curtula Erichson, 1835, Arch. f. Nat., 1, P. 1, pg. 266.

This species was described from Brazil, and I have several specimens determined by Moser, as well as several from Paraguay. The species is very distinct through the strong spine at middle posterior margin of the hind femora, as well as the very long and dense "brush" of testaceous hair on the mentum.

R. curtula differs from *huanuca* mainly as follows: coloration polished but not metallic, color piceous with a large red humeral spoth on each elytron, the spots separated by the black sutures; body more convex dorsally; clypeus with sides slightly convergent apically and disc more convex and more coarsely punctate, the apex faintly emarginate; thorax with disc much more coarsely and densely punctate (punctures separated by 1-2 times their diameters) and the lateral margin, near the sides, apical margin and the apical fourth of disc with a few to several long, coarse, testaceous hairs; elytral intervals sparsely punctate, the 3rd a little wider than 2nd, and wider than 4th; pygidium convex and very faintly longitudinally gibbose, puncturation sparse and setae short and sparse and directed apically, a very little longer apically;

hind coxae covering only first $1\frac{1}{2}$ to 2 segments at their centers; hind coxal plates very large and similar to *huanuca*; abdominal sternites male 2-5 with dense moderately long hairs at middle, and a single sparse transverse line of setae laterally; 6th sternite shorter than preceding and transversely impressed; hind femora both sexes with strong spine at middle of posterior margin (Fig. 1, *a*); claws of female all similar to one another; fore claws male dissimilar, the outer similar to those of other feet in shape but a little larger (deeply cleft, with the basal portion widest), the inner claw cleft and with the apical tooth long and narrow and the basal tooth much shorter and square (Fig. 1, *e*); male genitalia quite different from those of *curtula*.

Notulae Mallophagologicae. XVIII. Ueber Einige Heptapsogastridae

Von Wolfdietrich Eichler, Ravensburg.

(Mit 9 Abbildungen im Text)

Kaum eine andere Mallophagengruppe ist so gut bekannt wie die rein suedamerikanische Familie der Heptapsogastridae. Dies ist vor allem der meisterhaften Monographie Carriker's zu verdanken, die fast gleichzeitig durch Untersuchungen von Clay und Kèler sowie kurze Zeit darauf durch Studien von Guimarães und Hopkins ergaenzt wurde. Die Arten dieser Familie galten bisher als exklusive Tinamiden-Parasiten, jedoch konnte ich zwei bei Cariamidae lebende Arten feststellen. Ob dieser Tatsache eine stammesgeschichtliche Bedeutung zukommt, sei vorlaeufig dahingestellt. Mein nachfolgender Bericht bringt einige Ergaenzungen zu den verschiedenen im Laufe der letzten Jahre erschienenen Heptapsogastriden-Studien anderer Autoren.

1. *Cuclotocephalus crassipcs* Rdw.

Eine im bisherigen Mallophagenschrifttum vernachlaessigte Art. Rudow beschrieb naemlich 1869b in seinem "Beitrag zur Kenntniss der Mallophagen oder Pelzfresser" (Diss. phil. Leipzig) auf S. 16 einen "*Docophorus crassipcs*" von "*Tinnamus banoquira*", den er wegen der Form des Kopfes mit *Psittoecus eos* Rdw. vergleicht, sodass ich vermute, dass es sich um eine *Cuclo-tocephalus*-Art von *Nothura boraquira* handelt. Mit dem "*Nirmus crassiceps*" Rdw. 1870, der nach Kèler ein Synonym zu *Strongylocotes lipogonus* darstellt, hat *crassipcs* nichts zu tun. Wohl aber waere der Name wegen Prioritaet bzw. Homonymie zu *crassipes* Ntz. i. Brm. zu verwerfen, falls *crassipcs* ein Druckfehler fuer *crassipes* ist.

2. *Heinrothiella inexpectata* Wd. Eichl.

Ich beschrieb diese Art (142p, p. 30) von *Chunga burmeisteri* Hartl., ohne Abbildungen zu geben, was ich hiermit durch den Kopf eines Maennchens (Abb. 1) und die maennlichen Genitalien

(Abb. 2) nachhole. *H. inexpectata* und *H. frielingi* Wd. Eichl. von *Cariama cristata* Linn. (1941c, p. 371, f. 2) sind die einzigen Heptapsogastriden, die bei anderen Voegeln als Tinamiden leben. Die Abb. 3 zeigt ein Ei von *H. inexpectata*.

3. *Hypocrypturellus coniceps coniceps* Tbg.

Diese Art lag Carriker (1936a) zu seiner Monographie der Heptapsogastriden nicht vor und ist auch spaeter weder von Clay (1937a) noch K  ler (1940a) erw  hnt worden. Ein mir aus der Sammlung des Instituts fuer Parasitenkunde in Berlin vorliegendes Maennchen WEC 614 (616 / G 654 / (1983) / 6098) von *Crypturellus variegatus* Gmel. stimmt weitgehend mit der von Taschenberg (1882a in N. Acta Leopold. 44, Taf. I Fig. 8) gegebenen Abbildung ueberein. Der Prothorax weist allerdings keine konkaven, sondern gerade bis schwach konvexe Hinterseiten auf. Die Genitalien und den Fuehler gebe ich durch die Abbildungen 4 und 5 wieder.

4. *Pterocotes aberrans mokak*, nov. subsp.

Diese neue Unterart liegt mir von *Tinamus major major* Gmel. aus dem Hamburger Museum in zwei einzelnen Weibchen vor (WEC 1224: Bras. Sta. Catharina / Bez. Joinville / Ort Humboldt / 21.XII.1913 / W. Ehrhardt leg. / vend. 11.III.1944 / *Trachipelmus brasiliensis* / Mokak). Ob es sich wirklich nur um eine Unterart von *P. aberrans* oder gar um eine eigene Art handelt, kann erst nach Unthersuchung von Maennchen sichergestellt werden. Gegenueber der Nominatform ist der Kopf vorne flacher gerundet. Die Fuehler sind wie bei *P. a. taoi* (erstes Fuehlerglied schmaeler als bei *P. a. aberrans*). Augen fehlen (von Linsen ist nichts zu sehen), der Kopfumriss ebenso wie die Zeichnung der Fuehlergegend entspricht jedoch weitgehend *P. a. aberrans*. Jedoch reichen die Schlaefen nicht bis in die Hoehe der Prothoraxecken, was aber offenbar von der groesseren Laenge des Prothorax herruehrt (die Hinterkopfwoelbung ist etwa intermediaer zwischen *P. a. aberrans* und *P. a. taoi*). Gestalt und Beborstung des zigarren-

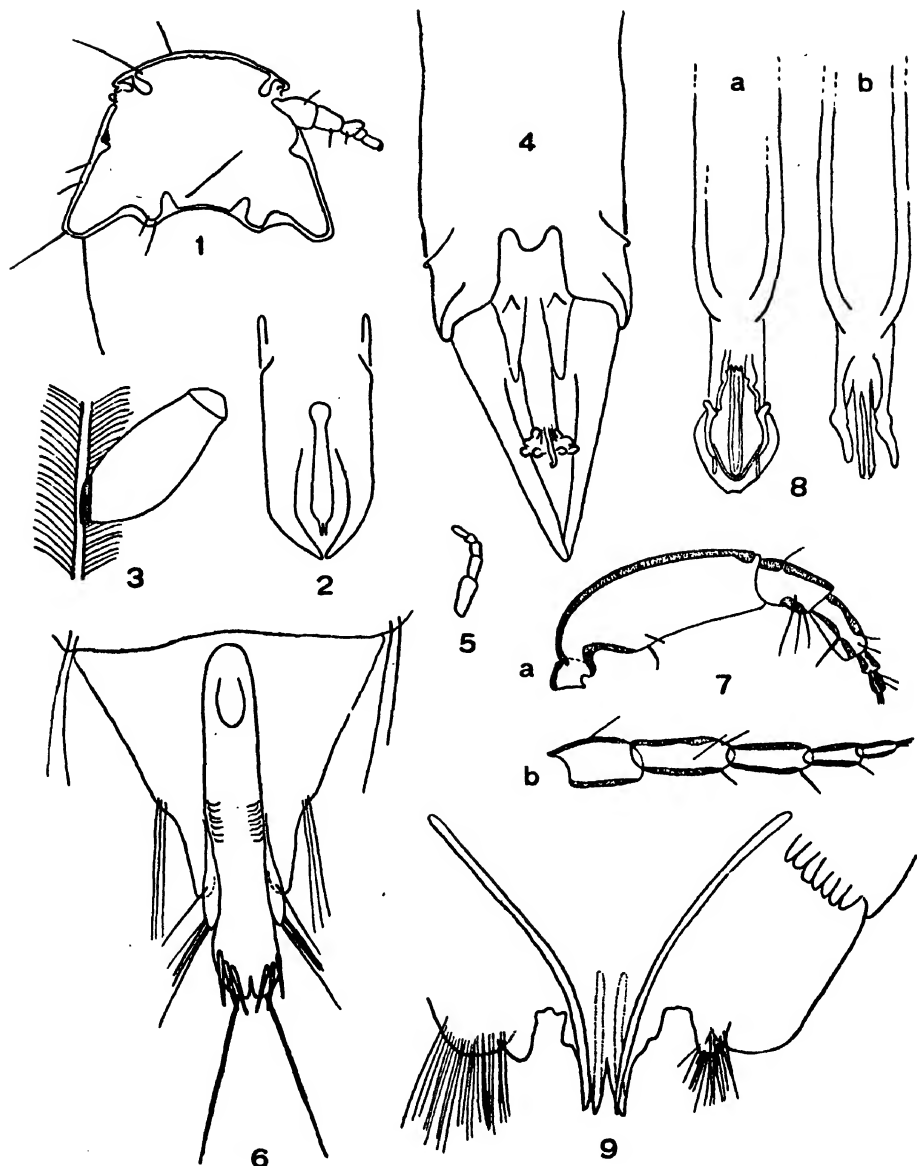


Abb. 1. Kopf des Maennchens von *Heinothiella inexpectata* Wd. Eichl. bei *Chunga burmeisteri* Hartl.; nach Praeparat WEC 2000. — Abb. 2. *Idem*, Maennliches Genitale, nach Praeparat WEC 2000. — Abb. 3. *Idem*, Ei an Federstrahl bei *Chunga burmeisteri* Hartl.; nach Praeparat WEC 2000. — Abb. 4. Genitalien eines Maennchens von *Hypocrypturellus coniceps coniceps* Tbg. bei *Crypturellus variegatus* Gmel.; nach Praeparat WEC 614. — Abb. 5. *Idem*, Fuehler eines Maennchens, nach Praeparat WEC 614. — Abb. 6. Weibliches Hinterleibsende von *Pterocotes aberrans mokak* nov. subsp. bei *Tinamus m. major* Gmel.; nach der Holotype WEC 1244a. — Abb. 7. Fuehler (a) des Maennchens und (b) des Weibchens von *Rhopaloceras oniscus aliceps* Gbl. bei *Tinamus m. major* Gmel.; nach (a) Praeparat WEC 1244a und (b) 1244b. — Abb. 8. *Idem*, Maennliche Genitalien in situ, nach Praeparat (a) WEC 1244 und (b) 1256. — Abb. 9. *Idem*, Weibliche Genitalien und Hinterleibsende, nach Praeparat WEC 1244; die Beborstung der beiden terminalen Beulen ist jeweils nur auf einer Koerperseite gezeichnet. — (Wd. Eichler del.)

foermigen weiblichen Genitale scheinen ebenfalls charakteristisch (Abb. 6). In mm messen die Kanadabalsamexemplare: Koerperlaenge 1,60-1,65; Hinterleibsbreite 0,57-0,58; Kopflaenge 0,49-0,49; Kopfbreite 0,62-0,62.

5. *Rhopaloceras oniscus aliceps* Gbl.

Liegt mir von *Tinamus major major* Gmel. aus dem Hamburger Museum in den Funden WEC 1244 (Bras. Sta. Catharina / Bez. Joinville / Ort Humboldt / 21.XII.1913 / W. Ehrhardt leg. / vend. 11.III.1914 / *Trachipelmus brasiliensis* / Mokak) und 1256 (dto. 26.V.1916 / v. *Tinamus major* / gr. Steisshuhn / vend. 12.II.1921) vor. In mm messen die in Kanadabalsam liegenden Exemplare WEC 1244: 1 Maennchen (2 Weibchen): Koerperlaenge 4,49 (5,57-5,85); Hinterleibsbreite 1,90 (2,09-2,13); Kopflaenge 1,73 (1,68-1,75); Kopfbreite 2,18 (2,57-2,52); Fuehlerlaenge 0,85 (0,71-0,73). Die Abb. 7 zeigt den maennlichen und weiblichen Fuehler. Die Zahl der Kammzaehne der Exemplare 1244 ist auf den Segmenten III, IV, V, VI, VII bei Maennchen (Weibchen): 20, 24 (22, 22; 23, 24); 19, 20 (18, 17; 18, 18); 19, 20 (19, 17; 19, 19); 16, 15 (15, 16; 16, 17); 7, 9 (7, 7; 8, 8). Die maennlichen Genitalien geben *in situ* kein ganz klares Bild, sodass ich mich auf Skizzierung der beobachteten Lageverhaeltnisse (Abb. 8) breschraenke und bezueglich der topographischen Deutung auf Kèler's Darstellungen verweise. Die in Abb. 9 gezeichneten weiblichen Genitalien scheinen in ihrer Lagebeziehung zum Hinterleibsende recht charakteristisch zu sein. Jedenfalls vermag ich nach der Form des Pfortlappens und der Laenge der Borsten nicht, meine Exemplare mit der auf *Tinamus tao* (*tao* Temm.) lebenden Nominatform zu identifizieren, die bisher allein von Kèler einwandfrei dargestellt worden ist (1940a, p. 194). Immerhin bliebe diese gegenueber meiner neuen Unterart noch einmal kritisch zu differenzieren. Die maennlichen Genitalien stimmen gut ueberein mit der von Kèler gegebenen Darstellung von der *aliceps*-Holotype, die er fuer konspezifisch hielt mit *oniscus*. Dies bliebe allerdings noch nachzupruefen: ich

bin gerade wegen der Unterschiede der weiblichen Genitalregion nicht davon ueberzeugt, und vom echten *oniscus* sind ja Maennchen nicht bekannt. Denn Carriker's *oniscus* ist ja keiner wegen der Masse (auch Hopkin's 1938 p. 198 geaeusserte Vermutung einer Identitaet von *aliceps* und *simplex* ist ja aus demselben Grunde hinfaellig), und ob die von Kèler in seiner (zwar frueher im Druck erschienenen aber) spaeteren Arbeit (durch Plaumann von *Tinamus solitarius* Vllt. gesammelten) als *oniscus* beschriebenen (also "oniscus sensu Kèler") Exemplare wirklich mit "*oniscus* Ntz." (sensu Ntz.!) identisch sind, erscheint mir ebenfalls noch nicht bewiesen (vgl. Kèler 1939 p. 222-225).

6. *Rhopaloceras oniscus carrikeri*, nov. nom.

So benenne ich die von Carriker (1936a p. 107) unter *oniscus* von *Tinamus tao tao* Temm. beschriebene Form. Die Groessenunterschiede gegenueber der Nominatform rechtfertigen allein schon die subspezifische Trennung.

Bibliographie.

- Carriker, M. A., 1936a, Studies in Neotropical Mallophaga. Part I. Lice of the Tinamous. — Proc. Acad. Nat. Sci. Philad. 88 : 45-218. (Dort Verzeichnis der aelteren Heptapsogastriden-Literatur).
- 1940a, Studies in Neotropical Mallophaga. Part II. New genera and species. — Lloydia 3 : 281-300. (Einfuehrung des Namens *Hypocrypturellus*).
- Clay, Th., 1937a, Mallophaga from the Tinamidae. — Proc. Zool. Soc. London, B : 133-159. (Ergaenzung der Carriker'schen Monographie durch eigenes Material).
- 1940, Mallophagan Miscellany. Part I. — Ann. Nat. Hist. 11. ser.: 6 : 427-433. (Ueber die Piaget'sche Sammlung in Leiden).
- 1943, Bird lice from the Tinamidae. — Zool. Ser. Field Mus. Nat. Hist. 24 : 375-387. (Funde bei *Nothura boraquira* und Diskussion der Rudow'schen Arten von diesem Wirt).
- Eichler, Wd., 1941c, Zur Klassifikation der Lauskerfe (Phthiraptera Haeckel: Rhynchophthirina, Mallophaga und Anoplura). — Arch. Naturgesch. N. F. 10 : 345-398. (Beschreibung und Abbildung von *Heinrothiella frielingi*).
- 1942p, Notulae Mallophagologicae. VIII. *Heinrothiella inexpectata* nov. gen. et spec. und einige andere z. T. neue Federlinge. — Zool. Anz.

- 139 : 27-31. (Beschreibung von *Heinrothiella inexpectata*, Einfuehrung der Gattung *Heinrothiella*).
- 1946a, Probleme der Mallophagenforschung. — Voegel der Heimat (Heptapsogastridae und phylogenetischer Parallelismus).
- 1946f, Phthirapterarum Mundi Catalogus. — Sonderbeilage VI der Acta Malloph. (Vervielfaeltigtes Gesamtverzeichnis aller Mallophagen und Anopleuren).
- Guimarães, L. R. & Lane, F., 1937a, Contribuições para o conhecimento das Mallophagas das aves do Brasil. VI. Novas espécies parasitas de Tinamiformes. — Rev. Mus. Paulista 23 : 1-21.
- Hopkins, G. H. E., 1938-42 verschiedene Beitræge in: Ann. Nat. Hist.; nicht im Original eingesehen.
- Kèler, S., 1939a, Brasilianische Mallophagen. 1. Beitrag. — Arb. Morph. Taxon. Ent. Berlin-Dahlem 5 : 305-326.
- 1939b, Brasilianische Mallophagen. 2. Beitrag. — Arb. Morph. Taxon. Ent. Berlin-Dahlem 6 : 222-253.
- 1940a, Baustoffe zu einer Monographie der Mallophagen. II. Teil: Ueberfamilie der Nirmoidea (1). — Nov. Acta Leop. N. F. 8 : (51).
- Thompson, G. B., 1939c, A List of the Type-hosts of the Mallophaga and the Lice described from them. — Ann. Nat. Hist. 11. ser. 2 : 580-593.

New Neotropical Cerambycidae, Belonging to the Genus *Dorcasta* Pascoe (Coleoptera).

By W. S. Fisher,

Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, United States Department of Agriculture, Washington, D. C.

This paper is the result of a study of the beetles of the genus *Dorcasta* Pascoe, belonging to the family Cerambycidae found in the United States National Museum Collection and of material received for identification from D a r i o M e n d e s, chief of the Secção de Entomologia, Instituto de Experimentação Agrícola, Rio de Janeiro, Brazil. Eight species are described as new.

Dorcasta prolongata, new species

Narrowly elongate, cylindrical, dark reddish brown; pronotum and elytra ornamented with white pubescence.

Head with front slightly longer than wide, slightly convex, the sides obliquely converging toward vertex, deeply, narrowly depressed between antennal tubercles which are narrowly separated, strongly elevated, and unarmed; surface coarsely, rather densely punctate, densely clothed with short, recumbent, yellowish-white pubescence. Eyes coarsely granulated, very deeply emarginate; lower lobes triangular, subequal in length to cheeks beneath; upper lobes narrow, separated from each other on the top by one-half the width of each lobe. Antenna as long as body, rather slender, sparsely ciliate beneath with short, semierect, brownish hairs, densely clothed with short, recumbent, brownish-yellow pubescence.

Pronotum subcylindrical, as wide as long, subequal in width at base and apex, widest at middle; sides feebly expanded at middles, parallel anteriorly and posteriorly; disk transversely tumid at middle; surface coarsely, sparsely punctate, densely clothed with short, recumbent, yellowish pubescence, with two, more or less distinct, white pubescent vittae on each side. Scutellum rectangular, subtruncate at apex, uniformly clothed with short, recumbent, yellowish pubescence.

Elytra narrow, slightly wider than pronotum; sides feebly, obliquely converging from bases to near apices, which are separated, obliquely truncate, each with the sutural angle rounded and lateral angle strongly produced, elevated, and broadly rounded at apex; disk strongly convex and uneven; surface coarsely, deeply, rather densely punctate, sparsely, irregularly clothed with short,

recumbent, yellowish pubescence, with numerous irregularly distributed dark spots, and each elytron ornamented with white pubescence as follows: A broad, oblique fascia extending from humerus to sutural margin at basal third, a short vitta along lateral margin behind middle, and a narrow vitta enclosing a small, round, dark spot along sutural margin at apex.

Body beneath finely, sparsely punctate, densely clothed with moderately long, recumbent, whitish pubescence, forming two, more or less distinct vittae on each side of abdomen.

Length 8 mm., width 1.7 mm.

Type locality. — Mar de Hespanha, E. Minas Gerais, Brazil.

Type. — In the Instituto de Experimentação Agrícola, Rio de Janeiro.

Described from a single specimen collected November 19, 1904, by J. F. Zikán.

This species is allied to *Dorcasta furcula* Bates, but it differs from that species in having the front of the head with the sides obliquely converging toward the vertex, the pronotum tumid at the middle, with the sides slightly expanded at the middles and parallel posteriorly and anteriorly, the surface of the elytra uneven, and each elytron with a broad oblique white pubescent fascia extending from the humeral angle to the sutural margin at the basal third.

Dorcasta inaequalis, new species

Narrowly elongate, cylindrical, dark reddish brown; pronotum and elytra ornamented with whitish and brownish-black pubescence.

Head with front distinctly longer than wide, slightly convex, the sides parallel, deeply depressed between antennal tubercles, which are rather widely separated, slightly elevated, and feebly spinose; surface densely, coarsely punctate, densely clothed with short, recumbent, yellowish-white pubescence. Eyes large, coarsely granulated, and very deeply emarginate; lower lobes triangular, longer than cheeks beneath; upper lobes narrow, separated from each other on the top by the width of each lobe. Antenna slightly shorter than body, rather slender, sparsely ciliate beneath with short, semierect, brownish hairs, densely clothed with short, recumbent, brownish-yellow pubescence.

Pronotum subcylindrical, slightly longer than wide, subequal in width at base and apex, widest at middle; sides arcuately expanded at middles, parallel posteriorly, sinuate anteriorly; disk uneven, transversely tumid at middle; surface coarsely, sparsely punctate, densely clothed with short, recumbent, yellowish

pubescence, with two more or less interrupted blackish vittae at middle and irregularly ornamented with white pubescence on each side. Scutellum rectangular, subtruncate at apex, uniformly clothed with short, recumbent, yellowish pubescence.

Elytra narrow, slightly wider than pronotum; sides nearly parallel to near apices, which are separately obliquely truncate and divaricate, without a distinct sutural angle, but each with the lateral angle acute; disk strongly convex, very uneven, with sutural margins elevated posteriorly; rather densely, coarsely, deeply punctate, sparsely clothed with short, recumbent, yellowish pubescence, with a few inconspicuous whitish pubescent spaces, and irregularly variegated with numerous black spots and irregular spaces.

Body beneath coarsely, deeply, densely punctate, rather densely clothed with short, recumbent, yellowish, and whitish hairs intermixed, giving the surface a variegated appearance.

Length 8 mm., width 1.7 mm.

Type locality. — Paraguay.

Type. — In the Instituto de Experimentação Agrícola, Rio de Janeiro.

Described from a single specimen collected by F. Schade.

This species resembles *Dorcasta prolongata* Fisher, but it differs from that species in having the front of the head narrower, with the sides parallel, the eyes larger and longer than the cheeks, the pronotum with two more or less interrupted blackish vittae at the middle, the dorsal surface of the elytra very uneven, with the sutural margins strongly elevated posteriorly, and in each elytron not having an oblique white pubescent fascia behind the scutellum.

Dorcasta divaricata, new species

Narrowly elongate, cylindrical, dark reddish brown; pronotum and elytra ornamented with white pubescence.

Head with front slightly longer than wide, slightly convex, the sides obliquely converging toward vertex, deeply depressed between antennal tubercles, which are rather widely separated, slightly elevated, and unarmed; surface coarsely, sparsely punctate, densely clothed with short, recumbent, yellowish-white pubescence. Eyes small, coarsely granulated, and nearly divided; lower lobes triangular, shorter than cheeks beneath; upper lobes narrow, separated from each other on the top by the width of each lobe. Antenna as long as body, robust, densely ciliate beneath with rather long, semierect, brownish hairs, densely clothed with short, recumbent, brownish-yellow pubescence.

Pronotum subcylindrical, slightly longer than wide, subequal in width at base and apex, widest at middle; sides vaguely, regularly, arcuately rounded; disk uniformly convex; surface coarsely, densely, deeply punctate; sparsely clothed with moderately long, recumbent, yellowish pubescence, with two reddish-brown vittae at middle and two white pubescent vittae on each side. Scutellum rectangular, subtruncate at apex, clothed with short, recumbent, white pubescence.

Elytra narrow, slightly wider than pronotum; sides feebly, obliquely converging from bases to near apices, which are separately obliquely truncate, each with the sutural angle rounded and lateral angle strongly produced, elevated, and acute at apex; disk strongly convex posteriorly, slightly flattened basally; surface coarsely, deeply, rather densely punctate, sparsely, irregularly clothed with short, recumbent, yellowish pubescence, and each elytron ornamented with white pubescence as follows: A narrow vitta extending from humerus to tip of lateral spine at apex, and a similar vitta along lateral margin.

Body beneath rather densely, coarsely punctate, densely clothed with moderately long, recumbent, whitish pubescence, forming two, more or less distinct vittae on each side of abdomen.

Length 8.5 mm., width 1.7 mm.

Type locality. — Turrialba, Costa Rica.

Type and paratype. — In the Instituto de Experimentação Agrícola, Rio de Janeiro. Paratype in the United States National Museum.

Described from three specimens (one type) collected during October 1928, by Ferd. Nevermann.

This species resembles *Dorcasta furcula* Bates, but it differs from that species in having the front of the head with the sides obliquely converging toward the vertex, the antennae more robust, the pronotum and elytra sparsely pubescent, and each elytron with a distinct white pubescent vitta near the lateral margin.

Dorcasta fasciata, new species

Narrowly elongate, cylindrical, dark reddish brown; pronotum and elytra ornamented with white and brownish-black pubescence.

Head with front slightly longer than wide, slightly convex, the sides nearly parallel, deeply depressed between antennal tubercles, which are narrowly separated, slightly elevated, and unarmed; surface rather densely, coarsely punctate, densely clothed with short, recumbent, whitish pubescence. Eyes large,

coarsely granulated, and nearly divided; lower lobes triangular, slightly shorter or subequal in length to cheeks beneath; upper lobes narrow, separated from each other on the top by one-half the width of each lobe. Antenna as long as, or slightly longer than body, rather slender, sparsely ciliate beneath with short, semierect, brownish hairs, rather densely clothed with short, recumbent, brownish-yellow pubescence, and narrowly, feebly annulated with white pubescence at bases of segments.

Pronotum subcylindrical, as wide as long, subequal in width at base and apex; sides parallel, or at most only vaguely rounded at middle; disk uniformly convex; surface coarsely, densely punctate, densely clothed with short, recumbent, yellowish pubescence, with two more or less distinct, reddish-brown vittae at middle, and one or two obsolete, white pubescent vittae on each side. Scutellum rectangular, subtruncate at apex, densely clothed with short, whitish pubescence.

Elytra narrow, slightly wider than pronotum; sides obliquely converging from bases to near apices, which are conjointly broadly, arcuately emarginate, each with the lateral angle strongly produced and acute at apex; disk strongly convex posteriorly, moderately convex anteriorly; surface coarsely, deeply, seriatly punctate, sparsely, irregularly clothed with short, recumbent, yellowish pubescence. Each elytron ornamented with white pubescent markings as follows: A broad, oblique fascia extending from humerus to sutural margin at basal third, and three or four short vittae behind middle, and with nearly glabrous dark red spaces as follows: An elongate area behind scutellum, an irregular, broad, oblique fascia near middle, and numerous elongate spots on apical half.

Body beneath rather densely, coarsely punctate, densely clothed with moderately long, recumbent, whitish pubescence, forming two, more or less distinct, vittae on each side of abdomen.

Length 6-8 mm., width 1.3-1.5 mm.

Type locality. — Paraiso, Canal Zone.

Type and paratypes. — In the United States National Museum.

Described from six specimens (one type). The type and three paratypes were collected at the type locality, January 20 to May 9, 1911, by E. A. Schwarz, one paratype was collected at Panama, Panama, April 15, 1911, by the same collector, and one paratype was collected on Taboga Island, Panama, September 21-22, 1918, by H. F. Dietz.

This species resembles *Dorcasta lignea* Bates, but it differs from that species in being more slender and more strongly attenuate posteriorly, in having the oblique white pubescent fascia at base of each elytron broad and extending to the sutural margin, and the lateral margin of each elytron more strongly produced.

Dorcasta puncticollis, new species

Narrowly elongate, cylindrical, dark reddish brown; pronotum and elytra ornamented with white pubescence.

Head with front distinctly longer than wide, nearly flat, the sides obliquely converging toward vertex, deeply depressed between antennal tubercles, which are narrowly separated, strongly elevated, and unarmed; surface rather densely, coarsely punctate, densely clothed with moderately long, recumbent, yellowish-white pubescence. Eyes small, coarsely granulated, and nearly divided; lower lobes triangular, shorter than the cheeks beneath; upper lobes narrow, separated from each other on the top by about the width of each lobe. Antenna as long as body, rather robust, sparsely ciliate beneath with short, semierect, brownish hairs, densely clothed with short, recumbent, brownish-yellow pubescence, and narrowly, feebly, annulated with white pubescence at bases of segments.

Pronotum subcylindrical, slightly longer than wide, wider at apex than at base; sides slightly, obliquely converging toward bases; disk moderately convex, feebly, transversely depressed along base; surface coarsely, deeply, confluent punctate, rather sparsely, irregularly clothed with short, recumbent, yellowish pubescence, with a few long, erect, brownish hairs at sides, and a white pubescent vitta on each side. Scutellum rectangular, subtruncate at apex, clothed with yellowish-white pubescence.

Elytra narrow, slightly wider than pronotum; sides parallel to near apices, which are separately obliquely truncate, each with the sutural angle broadly rounded and lateral angle strongly produced, elevated, and rather acute at apex; disk strongly convex posteriorly, slightly flattened basally; surface coarsely, deeply, seriatly punctate, sparsely, irregularly clothed with short, recumbent, yellowish pubescence. Each elytron ornamented with white pubescence as follows: A narrow vitta extending from humerus to lateral angle of apex (interrupted behind middle by small, elongate dark reddish spots) and a few inconspicuous spots along lateral margin, and with a number of nearly glabrous, elongate, dark reddish spaces.

Body beneath rather densely, coarsely punctate, densely clothed with moderately long, recumbent, yellowish-white pubescence.

Length 8 mm., width 1.7 mm.

Type locality. — Chinandega, Nicaragua.

Type. — In the United States National Museum.

Described from a single specimen from the C. F. Baker Collection.

This species is allied to *Dorcasta furcula* Bates, but it differs from that species in having the front of the head narrower, with the sides obliquely converging toward the vertex, and the surface more deeply depressed between the antennal tubercles, which are more narrowly separated, the pronotum confluent punctate and in not having two blackish vittae at the middle, and in having the elytra obliquely truncate at their tips.

Dorcasta zeteki, new species

Short, narrow, cylindrical, dark reddish brown; pronotum and elytra ornamented with white pubescence.

Head with front longer than wide, flat, the sides parallel, deeply depressed between antennal tubercles, which are large, moderately elevated, rather widely separated, and unarmed; surface coarsely, rather densely punctate, rather densely clothed with moderately long, recumbent, whitish pubescence. Eyes very large, coarsely granulated, very deeply emarginate; lower lobes triangular, twice as long as cheeks beneath; upper lobes narrow, separated from each other on the top by about the width of each lobe. Antenna as long as body, rather slender, sparsely ciliate beneath with long, semierect, blackish hairs, densely clothed with short, recumbent, brownish-yellow pubescence, and each segment indistinctly, narrowly annulated with white pubescence at bases of segments.

Pronotum subcylindrical, as wide as long, subequal in width at base and apex, widest at middle; sides vaguely expanded at middles, parallel anteriorly and posteriorly; disk transversely tumid at middle; surface coarsely, sparsely punctate, densely, uniformly clothed with short, recumbent yellowish-brown pubescence, with two more or less interrupted white pubescent vittae on each side. Scutellum rectangular, subtruncate at apex, uniformly clothed with short, recumbent, white and yellowish pubescence.

Elytra narrow, slightly wider than pronotum, sides parallel from humeral angles to near apices, which are separately obliquely truncate, each with the sutural angle rounded, and the lateral angle

slightly produced and acute; disk convex, more strongly posteriorly, with the sutural margins elevated; surface coarsely, densely punctate, the punctures arranged in more or less distinct rows on sutural regions, sparsely, irregularly clothed with short, recumbent, yellowish pubescence, and each elytron ornamented with white pubescence as follows: Two narrow, oblique fasciae (inner one arcuate, outer one straight) extending from humeral angle to sutural margin at basal third, and enclosing a dark, heart-shaped space behind scutellum (common to both elytron), a short, oblique fascia along sutural margin at apical fourth, and with a few small scattered spots in apical region.

Body beneath coarsely, sparsely punctate, densely, uniformly clothed with long, recumbent, whitish and yellowish pubescence.

Length 4.5-5.6 mm., width 1-1.5 mm.

Type locality. — Corozal (near Panama City), Canal Zone.

Type and paratypes. — In the United States National Museum.

Described from three specimens (one type). The type and one paratype were collected at the type locality, March 22, 1911, by E. A. Schwarz and A. H. Jennings, and the other paratype was collected on Taboga Island, Panama, June 19, 1918, by H. F. Dietz and J. Zetek.

This species is allied to *Dorcasta occulta* Bates, but it differs from that species in having slender antennae, and by the distinct and oblique white pubescent fasciae on the elytra.

Dorcasta angusta, new species

Short, narrow, subcylindrical, dark reddish brown; pronotum and elytra ornamented with white pubescence.

Head with front about as wide as long, slightly convex, the sides parallel, deeply depressed between antennal tubercles, which are large, moderately elevated, rather widely separated, and unarmed; surface coarsely, sparsely punctate, rather densely clothed with moderately long, recumbent, whitish pubescence. Eyes large, coarsely granulated, very deeply emarginate; lower lobes subtriangular, as long as cheeks beneath; upper lobes narrow, separated from each other on the top by nearly twice the width of each lobe. Antenna about as long as body, rather slender, sparsely ciliate beneath with long, semierect, blackish hairs, densely clothed with short, recumbent, brownish-yellow pubescence, and indistinctly, narrowly annulated with white pubescence at bases of segments.

Pronotum subcylindrical, as wide as long, subequal in width at base and apex, widest at middle; sides vaguely, arcuately narrowed anteriorly, nearly parallel posteriorly; disk convex, transversely flattened along base; surface coarsely, rather densely punctate, sparsely clothed with short, yellowish pubescence, more densely pubescent at sides, with two more or less distinct and less densely pubescent vittae at middle, and a white pubescent vitta on each side. Scutellum transverse, truncate at apex, sparsely clothed at sides with short, recumbent, yellowish pubescence.

Elytra narrow, slightly wider than pronotum; sides parallel from humeral angles to near apices, which are separately obliquely truncate, each with the sutural angle rounded, and lateral angle scarcely produced; disk moderately convex, slightly flattened basally; surface coarsely, densely punctate, the punctures arranged in more or less distinct rows in sutural regions, sparsely, rather uniformly clothed with short, recumbent, yellowish pubescence, and each elytron ornamented with a more or less distinct, sinuate, white pubescent vitta extending from base to apex.

Length 4.5-5.5 mm., width 1-1.25 mm.

Type locality. — Porto Alegre, Rio Grande do Sul, Brazil.

Type and paratypes. — In the Instituto de Experimentação Agrícola, Rio de Janeiro. Paratype in the United States National Museum.

Described from four specimens (one type) collected at the type locality during August and September.

This species resembles *Dorcasta divaricata* Fisher, but it differs from that species in being smaller, in having the antennae slender and sparsely ciliate beneath, the front of the head with the sides parallel, the pronotum transversely flattened along the base, and the sides of the elytra parallel, with the lateral angles scarcely produced.

Dorcasta harringtoni, new species

Short, narrow, subcylindrical, dark reddish brown; pronotum and elytra ornamented with whitish pubescence.

Head with front as wide as long, slightly convex, the sides parallel, deeply depressed between antennal tubercles, which are large, moderately elevated, rather widely separated, and unarmed; surface sparsely, coarsely punctate, rather densely clothed with moderately long, recumbent, whitish pubescence. Eyes large, coarsely granulated, very deeply emarginate; lower lobes subtriangular, slightly longer than cheeks beneath; upper lobes

narrow, separated from each other on the top by twice the width of each lobe. Antenna about as long as body, rather slender, sparsely ciliate beneath with rather long, semierect, brownish hairs, moderately clothed with short, recumbent, whitish pubescence.

Pronotum slightly wider than long, vaguely narrower at base than at apex, widest at middle; sides slightly expanded at middles, parallel anteriorly, constricted and parallel posteriorly; disk slightly, transversely tumid in front of middle, transversely flattened along base, with a transverse depression on each side at middle; surface coarsely, confluent punctate, rather densely, irregularly clothed with moderately long, recumbent, white and yellowish pubescence, the white pubescence predominating on each side.

Elytra narrow, slightly wider than pronotum; sides parallel from humeral angles to near apices, which are separately obliquely sinuate, each with the sutural angle rounded and the lateral angle slightly produced; disk slightly flattened basally, strongly convex posteriorly, with the sutural margins elevated; surface coarsely, densely punctate, the punctures arranged in more or less distinct rows in sutural regions, sparsely, irregularly clothed with short, recumbent, white and yellowish pubescence, the white pubescence forming a broad, oblique fascia on each elytron and enclosing a dark heart-shaped space behind the scutellum, and with a broad, irregular fascia near the apices.

Body beneath densely, coarsely punctate, densely, uniformly clothed with moderately long, recumbent, whitish and yellowish pubescence.

Length 5.25 mm., width 1.25 mm.

Type locality. — General Ballivian, Salta Province, Argentine Republic.

Type. — In the United States National Museum.

Described from a single specimen collected during 1931 by G. L. Harrington.

This species resembles *Dorcasta fasciata* Fisher, but it differs from that species in having the pronotum slightly wider than long, with the sides constricted near the bases, the surface tumid in front of the middle with a transverse depression on each side, and the elytra sparsely clothed with whitish and yellowish pubescence intermixed, the white pubescent markings not so distinct, and the lateral angles of the apices scarcely produced.

Zur Kenntnis der Amerikanischen Bombyliiden-Gattung *Triploeuchus* Edw. (Diptera).

Von S. J. Paramonov, Division of Economic Entomology,
Canberra, Australien.

F. W. Edwards hat im Jahr 1936 (Revista Chilena de Historia Natural, XL, 31-41) eine neue Bombyliiden-Gattung *Triploeuchus* errichtet, welche ausschliesslich amerikanische (besonders suedamerikanische) Arten enthaelt. Die erste hierher gehoerige Art wurde von fruheren Autoren fuer eine *Bombylius*- oder *Triplasius*-Art gehalten (*T. heteroneurus* Macq. = *Bombylius heteroneurus* Macq.).

F. W. Edwards hat richtig angezeigt, dass die um die genannte Form sich gruppierenden Arten eine besondere, der Gattung *Bombylius* nahestehende Gattung bilden.

Von der letzten Gattung unterscheidet sich die Gattung *Triploeuchus* nach Edwards folgenderweise: 1) saemtliche Arten haben immer 3 Submarginalzellen; 2) der Hinterrand des Auges ist immer deutlich ausgebuchtet; 3) die Pulvillen sind verhaeltnismaessig sehr kurz (beinahe so lang wie die Haelfte der Krallenlaenge). Auf Grund dieser Merkmale zaehlt Edwards der Gattung *Triploeuchus* folgende Arten zu: *T. heteroneurus* Macq., *minor* Edw., *pallipes* Edw. und *T. angustipennis* Edw. (alle sind Suedamerikaner).

Betrachten wir nun den Umfang und Inhalt der Gattung *Triplasius* nach der Ausschaltung von *T. heteroneurus*, welcher im Katalog unter die *Triplasius*-Arten gestellt ist. Die typische Art dieser Gattung (Generotypus) ist nach den Angaben von Ricardo (1901), Bezzi (1924), Edwards (1936) und Hesse (1938), sowie nach meinen eigenen Untersuchungen eine echte *Bombylius*-Art, welche jedoch manchmal auch 3 Submarginalzellen besitzt (augenscheinlich ein atavistisches Merkmal). Infolgedessen muss man diese Art aus der Gattung *Triplasius* austreichen.

Beilaeufig ist zu bemerken, dass die Angabe von Becker, dass *Triplasius bivittatus* in Nord-Afrika vorkommt, nicht richtig ist; ich habe das Exemplar der Becker'schen Sammlung gesehen: das ist ein sehr schlecht erhaltenes Exemplar irgendwelcher *Conophorus*-Art. Prof. Bezzi (The Bombyliidae of the Ethiopian Region, p. 32, 1924) hat auch diese Meinung geaeussert.

Als eine zweite *Triplasius*-Art ist im Katalog *T. ornatus* Rond. erwaeht. Nach den Angaben von E d w a r d s (1930 und 1936) stellt diese Art nur ein Synonymon von *Triploechus heteroneurus* dar.

Die letzte *Triplasius*-Art des Katalogs ist *T. novus* Willist. R. H. P a i n t e r (Trans. Kansas Acad. Science., XLII, 279, 1939) zaehlt diese Art der Gattung *Heterostylum* zu. Unten werden wir die systematische Stellung dieser Form etwas eingehender betrachten, jedenfalls stimme ich der Meinung von R. H. P a i n t e r zu, dass dieselbe keine echte *Bombylius*-Art darstellt (sogar als ein Vertreter der Untergattung von *Triplasius*).

Infolgedessen ist es jetzt klar, dass die Gattung *Triplasius* in der Tat keine Arten hat; daher muss man diesen Namen unter den Synonymen der Gattung *Bombylius* unterbringen.

Was nun *Heterostylum novum* betrifft, so muss man sagen, dass seine Stellung in der Gattung *Heterostylum* etwas zweifelhaft ist, und zwar fehlt hier das am meisten charakteristische Merkmal: die grosse Breite des Kopfes, wie dies auch R. H. P a i n t e r betont. Der Kopf ist hier schmaeler als der Thorax, also so breit wie bei *Triploechus*, aber nicht wie bei *Heterostylum*. Das zweite Merkmal, die Zahl der Submarginalzellen, ist ein variierendes; manchmal sind 2, manchmal 3 Submarginalzellen vorhanden. Die Laenge der Pulvillen ist bei beiden Gattungen, sowohl bei *Triploechus* wie auch bei *Heterostylum*, eine gleiche; uebrigens spielt dieses Merkmal im allgemeinen keine wichtige Rolle.

Infolgedessen koennen wir diese Form entweder als eine *Triploechus*-Art mit einem nicht immer bestaendigen Geaeeder oder als eine *Heterostylum*-Art mit einem nicht normalen Kopfbau betrachten. Es scheint mir, dass die erste Meinung etwas wahrscheinlicher ist, da das Variieren im Fluegelgeaeeder sehr oft vorkommt und die Anzahl dieser Zellen spielt im allgemeinen keine wichtige Rolle. Auch ihrem Habitus und ihren Einzelheiten nach steht diese Form den *Triploechus*-Arten naeher als den *Heterostylum*-Arten, welche ausserdem fast immer eine charakteristische, an der Fluegelbasis in die Augen fallende Faerbung haben. Uebri-gens lasse ich diese Frage noch offen. Das ausfuehrliche Studium der *Triploechus*- und *Heterostylum*-Arten ist sehr notwendig; wir glauben, dass diese Zeilen einen Anstoss dazu geben.

Ich gebe jetzt die Bestimmungstabelle der *Triploecheus*-Arten; die einzige nordamerikanische Art, *T. novus* Willist., ist in die Tabelle nicht eingefuegt, siehe daher ihre Beschreibung am Ende des Artikels.

Bestimmungstabelle der Südamerikanischen *Triploecheus*-Arten.

1. Maennchen 2.
— Weibchen 4.
2. Die Augen sind durch einen schmalen Streifen, welcher beinahe die Haelfte der Breite des Ozellendreiecks einnimmt, getrennt. Fluegellaenge 6,5 mm. Der Fluegel ist im Basalteil sehr schmal (die Axillarzelle ist nur ein wenig breiter als die Analzelle), im Spitzenteil jedoch auf der Hoehe der Spitze der 1. Laengsader verbreitert sich der Fluegel bedeutend. Die gewoehnliche Querader liegt ein wenig hinter der Mitte der Discoidalzelle (Chile) *minor* Edwards
— Die Augen sind zusammenstossend. Fluegellaenge 9-10 mm. Die Form des Fluegels ist eine fuer die Gattung *Bombylius* normale, d. h. der Fluegel ist im Basalteil nicht sehr stark verengt und im Spitzenteil nicht bedeutend verbreitert. Die gewoehnliche Querader liegt bedeutend hinter der Mitte der Discoidalzelle 3.
3. Der Vorderrand des Fluegels ohne kurze stumpfe Doernchen. Notopleuralborsten braun. Schwarze Haare sind auf dem Kopf nicht beigemischt (Argentinien) *angustipennis* Edwards
— Der Vorderrand des Fluegels ist mit kurzen stumpfen Doernchen versehen. Notopleuralborsten schwarz. Auf dem Kopf sind auch die schwarzen Haare beigemischt (Chile) *heteroneurus* Macq.
4. Die ersten Fuehlerglieder sind roetlich oder ockerfarbig, das 3. Glied ist schwarz. Der Hinterrand des Schildchens und der meisten Tergite ist roetlich. Notopleuralborsten gelb. Beine gelb, nur sind die Tarsenspitzen teilweise verdunkelt (Chile) *pallipes* Edwards
— Fuehler schwarz. Brust, Schildchen und Hinterleib schwarz. Notopleuralborsten schwarz. Schenkel immer schwarz, Schienen mehr braun. 5.
5. Fluegellaenge 10-11 mm. Fluegelform normal (Chile) *heteroneurus* Macq.
— Fluegellaenge 6,5 mm. Der Fluegel ist im Spitzenteil verbreitert (Chile) *minor* Edw.

Beschreibungen der *Triploecheus*-Arten (mit kritischen Bemerkungen).

Triploecheus heteroneurus Macq. ♂, ♀

(= *Bombylius heteroneurus* Macq. = *Triplasius heteroneurus* Macq. = *Triplastus ornatus* Rond., 1863). Generotypus, d. h. Typus der Gattung.

Die Augen des Maennchens sind zusammenstossend, beim Weibchen durch eine Stirn getrennt, deren Breite ganz so gross ist wie die Breite eines Auges. Fuehler ganz schwarz. Die Haare auf dem Kopf, der Stirn und dem Gesicht sind hauptsaechlich gelblichgrau, mit zahlreichen schwarzen Haaren untermischt. Die

Grundfarbe des Thorax und des Hinterleibs ist ganz schwarz. Notopleuralborsten schwarz. Der Hinterleib ist an der Basis und an der Spitze gelblich behaart, an den Seiten sind die Haare lang und dicht; die Haare auf dem Hinterrand des 2. Segments und auf dem ganzen 3. und 7. sind schwarz; ein schwarzer Streifen befindet sich in der Mitte auf dem 4.-7. Segment. Beine schwarz, Schenkel mehr braeunlich. Die Fluegel sind bei beiden Geschlechtern beinahe auf der Basalhaelfte rauchbraun gefaerbt; beim Maennchen mit Haaren auf dem Vorderrand, welche in kleinen schwarzen Erhoeungen modifiziert sind, doch sind die Fluegel hinter der Mitte schwach verbreitert. Fluegellaenge 10-11 mm.

Chile. Exemplare im British Museum von Santiago (Stuardo, Ruiz); Rio Blanco (Reed); Marga-Marga (Jaffuel, Pirion); Lo Aguirre (Ruiz). (Edwards).

Die Abbildung von E d w a r d s zeigt folgende interessante Einzelheiten: die Form des Fluegels ist ziemlich gewoehnlich, obgleich die Spitzenhaelfte etwas breiter ist als dies in der Regel vorkommt; die gewoehnliche Querader befindet sich merklich hinter der Mitte der Discoidalzelle; der distale Abschnitt der 2. Laengsader bildet einen spitzen Winkel; die Axillarzelle ist fast zweimal breiter als die Analzelle, usw.

Im British Museum habe ich folgendes ueber diese Art notiert: "Der Hinterkopf ist gelblich behaart, doch befinden sich am Hinterrand der Augen sehr zahlreiche schwarze Haare (beim Maennchen von *T. angustipennis* fehlen dieselben gaenzlich); beim Weibchen befinden sich am Hinterkopf ebenfalls einzelne schwarze Haare. Diese Art ist viel groesser als die anderen bekannten Arten dieser Gattung. Stirn und Gesicht lang schwarz behaart, doch sind auch kuerzere hellere Haare vorhanden. Die Grundfarbe des Kopfes ist nicht so atlasweiss, fast silberglaenzend wie dies bei *T. angustipennis* der Fall ist. Die Beruehrungslinie der Augen ist dem Ozellenhoecker gleich. Die Borsten des Thoraxrueckens sind zahlreich, kraeftig, auch sind hier viele schwarze Haare beigemischt; ebensolche Haare befinden sich auch auf dem Schildchen und laengs dem Hinterrand der Tergite. Die Seiten der 3. und 4. Hinterleibssegmente tragen sehr grosse schwarze Haarbueschel; manchmal sind diese Tergite ganz schwarz behaart,

eine dunkle Haarstrieme bildend. Nicht selten kann man auch eine solche Laengsstrieme, die laengs dem ganzen Hinterleib verlaeuft, wahrnehmen. Im allgemeinen ist die Behaarung des Thorax und des Hinterleibs gelblich. Die Thoraxseiten tragen auch schwarze Haare. Schwinger gelb, Beine schwarz. Der Ruessel ist sehr lang, mehr als 3-mal laenger als der Kopf."

Ich gebe jetzt eine vollstaendigere Beschreibung des Weibchens. Die Grundfarbe des Koerpers ist schwarz. Die Stirn und besonders das Gesicht sind sehr dicht gelblich bestaeubt. Die Behaarung der Stirn und des Gesichtes ist lang, schwarz, doch nicht dicht und verteilt sich fast bueschelweise: auf dem Ozellenhoecker, jederseits etwas nach unten von demselben, jederseits der Fuehlerbasis. Eben solche Haare befinden sich auf den basalen Fuehlergliedern. Auf dem Gesicht sind auch ziemlich zahlreiche gelbliche Haare beigemischt. Die Behaarung des Hinterkopfs und des Kinns ist ueberwiegend gelblich, doch mit einer Zumischung schwarzer Haare. Fuehler wie gewoehnlich bei der Gattung *Bombylius*. Wangen schmal, Backen fast fehlend. Ruessel etwas laenger als der Kopf mit dem Thorax zusammen. Scheitel breit, ca. $\frac{1}{3}$ der Kopfbreite (etwas mehr) einnehmend. Der Scheitel ist 5-mal breiter als der Ozellenhoecker. Die Stirn zeigt eine nicht sehr deutliche Laengs- und eine deutlichere Querrinne. Der Hinterrand des Auges ist mit einer deutlichen, doch nicht tiefen Ausbuchtung versehen. Bisektion des Auges fehlend. Hinterkopf ohne Mittel-laengsrinne.

Thorax oben und Schildchen fast unbestaeubt, mit spaerlichen goldigen anliegenden Filzhaaren, aeusserst feinen, nicht zahlreichen, abstehenden Haaren und ziemlich zahlreichen und langen schwarzen Haaren und Borsten (die letzteren vor der Fluegelbasis, die ersteren auf dem Schildchen und auf den Hinterecken des Rueckens). Die Unterseite des Thorax ist dicht grau bestaeubt, die Mesopleuren sind schwarz und gelb behaart; die Behaarung am Vorderrand ist weisslich. Die Fluegel sind fast durchsichtig, am Vorderrand etwas gelbbraeunlicher getruebt, weiter graulich, der Uebergang ist sehr gleichmaessig. Geaeder wie bei *Bombylius*, doch ist die 2. Laengsader vor der Spitze rechtwinklig gebogen und muendet in den Vorderrand auch unter einem rechten Winkel (etwas gegen die Fluegelbasis gerichtet). Von der Spitze

dieses Winkels geht zum oberen Ast der 3. Laengsader eine fast S-foermig ueberzaehlige Querader. Die gewoehnliche Querader liegt etwas hinter der Mitte der Discoidalzelle. Schwinger gelb. Beine schwarz, Schienen braeunlich. Die Behaarung, Beschuppung und Beborstung der Beine ist hell. Die Borsten auf der Unterseite der Hinterschenkel sind nicht zahlreich, schwach, fast unmerkbar.

Der Hinterleib ist oben ziemlich lang und dicht schwarz behaart, nur sind das 1. Segment und die vorderen 2/3 des 2. durchweg gelblich behaart und gelblich schwachbefilzt. An den Seiten des 4. und 5. Segments befinden sich auch gelbliche Haare und Filzhaare (die letzteren sind anliegend), welche zwei deutliche helle Seitenflecken bilden. Unten ist der Hinterleib fast nackt.

Koerperlaenge 9 mm., Fluegellaenge 9,5 mm.

Diese Beschreibung ist nach einem weiblichen Exemplar (Chile, Concepción) gemacht.

Triploechnus minor Edwards ♂, ♀

Die Augen des Maennchens sind schmal getrennt (der sie trennende Streifen ist der Haelfte der Ozellariumbreite gleich); die Augen des Weibchens sind breiter als gewoehnlich getrennt. Fuehler ganz schwarz. Die Haare des Hinterkopfs, der Stirn und des Gesichts sind beim Maennchen fast ganz weisslich, die Stirn des Weibchens ist mit zahlreichen schwarzen Haaren versehen. Die Grundfarbe des Thorax und Hinterleibs ist ganz schwarz. Notopleuralborsten schwarz. Die Faerbung der Hinterleibsbehaarung ist scheinbar wie bei *T. heteroneurus* (die Typen sind etwas abgerieben). Beine schwarz, mit braeunlichen Schenkeln. Fluegel beraucht, ein wenig intensiver auf der Basalhaelfte und gegen die Costa; beim Maennchen hinter der Mitte bedeutend verbreitert. Costa mit kleinen Erhoeungen (Doernchen) wie bei *T. heteroneurus*. Fluegellaenge 6,5 mm.

Chile: Marga-Marga, X, 1912, Typus und ein anderes Maennchen im British Museum (F. Jaffuel); Perales, X, 1924, 1 ♂ (Pirion). Ausserden 2 ♂, 4 ♀ in der Bigot'schen Sammlung. (Edwards).

Die Abbildung von Edwards zeigt eine ungewoehnlich schmale Axillarzelle, welche nur ein wenig breiter als die Analzelle

in der breitesten Stelle ist; ausserdem ist sie von der Basis bis zur Spitze fast gleichbreit. Die gewoehnliche Querader liegt fast auf der Mitte der Discoidalzelle. Der Spitzenabschnitt der 2. Laengsader bildet einen fast rechten (doch nicht spitzen wie bei *T. heteroneurus*) Winkel. Besonders charakteristisch ist die Form des Fluegels: hinter der Mitte ist er (und zwar auf der Hoehe der Spitze der 1. Laengsader) bedeutend breiter als im Basalteil.

Im British Museum habe ich folgendes notiert: "Der Hinterkopf bei beiden Geschlechtern ist nur hell behaart. Die Stirn silberglanzend. Stirn und Gesicht fast ausschliesslich weiss behaart. Der Scheitel ist beim Weibchen viel breiter als $\frac{1}{3}$ der Kopfbreite. Die Form des Fluegels ist beim Maennchen sehr eigenartig, beim Maennchen sind die Fluegel merklich beraucht, beim Weibchen weniger."

Triploechus pallipes Edwards ♀.

Die Augen beim Weibchen sind vielleicht ein wenig breiter als bei *T. heteroneurus* getrennt. Die beiden ersten Fuehlerglieder sind roetlichockerfarbig, das 3. Glied ist schwarz. Die Haare des Hinterkopfs und des Gesichts sind weiss; auf der Stirn befindet sich ein Querstreifen von ockerfarbigen Haaren. Die Grundfarbe des Thorax und des Hinterleibs ist hauptsaechlich schwaerzlich, doch ist der Hinterrand des Schildchens und der meisten Tergite roetlich. Notopleuralborsten gelb. Die Behaarung der Oberseite des Hinterleibs ist meistens gelb, sogar auf dem 3. Segment, doch befindet sich ein schmaler schwaerzlicher Medianstreifen auf dem 5.-7. Segment; an den Seiten des 3. Segments befindet sich ein Bueschel von schwarzen Haaren, hinter welchem weisse Haare vorhanden sind. Beine gelblich, mit einer weissen Behaarung, nur die Tarsenspitzen sind teilweise verdunkelt. Fluegel fast wasserklar, die Costalzelle gelblich. Die Haare an der Basis der Costa sind gelb. Geader wie bei *T. heteroneurus*. Fluegellaenge 10 mm.

Chile: Santiago, 2 ♀ (Ruiz); H. las Mercedes, 3.I.1933, 1 ♀ (Ruiz). (Edwards).

Ich habe den Typus im British Museum gesehen: "Die Grundfarbe des Kopfes ist stark weiss gepudert. Quer ueber die Stirn verlaeuft ein schmaler Streifen goldgelblicher anliegender Schuppen. Der Ozellenhoecker von vorne gesehen ist sehr hoch ueber die Scheitellinie aufgehoben, an einige Asiliden erinnernd.

Der Scheitel nimmt fast $\frac{1}{3}$ der Kopfbreite ein. Das 3. Fuehlerglied ist fast 2-mal laenger als die beiden ersten Glieder. Hinterkopf gewoelbt (gepolstert), die Ausbuchtung des Augenrandes ist sehr scharf. Die Borsten des Thoraxrueckens sind ueberwiegend gelb, an den Hinterecken sind einzelne schwarze beige-mischt. Die Grundfarbe des Thoraxrueckens traegt drei deutliche grauliche Laengsstreifen in der Mitte. Der Hinterrand des Schildchens ist roetlich. Der Fluegelkamm ist fast unentwickelt. Die Fluegelflaeche ist sehr gleichmaessig gelblich verdunkelt, doch scheint sie von ferne gesehen ganz durchsichtig zu sein (alle anderen 3 bekannten Arten tragen eine sehr gut entwickelte dunkle Faerbung). Die gewoehnliche Querader liegt deutlich hinter der Mitte der Discoidalzelle. Die Axillarzelle ist viel breiter als die Analzelle. Beine, Schwinger roetlichgelb. Die Borsten auf der Unterseite der Hinterschenkel sind kurz, roetlich, nicht zahlreich. Die Grundfarbe der Tergite laengs dem Hinterrand ist roetlich. An den Seiten des 3. Tergits befindet sich ein Bueschel langer schwarzer Haare. Ruessel sehr lang, mindestens 3-mal laenger als der Kopf."

Triploechus angustipennis Edwards ♂

Die Augen des Maennchens sind zusammenstoessend. Die Hinterkopfs Haare sind weisslich, auf dem Gesicht gelblich und nicht sehr dicht; die Grundfarbe des Gesichts ist meist gelblich, deutlich bleicher als bei *T. heteroneurus*. Fuehler ganz schwarz, meist gleichmaessig schlank wie bei *T. heteroneurus*. Die Grundfarbe der Brust und des Hinterleibs ist ganz schwarz. Notopleuralborsten braun. Die Behaarung des Hinterleibs ist ebenso wie bei *T. heteroneurus* gefaerbt. Beine schwarz, Schenkel braeunlich. Fluegel schmaeler als bei *T. heteroneurus* und ausgebreiteter beraucht; Costa beim Maennchen ohne Erhoehungen (Doernchen). Fluegellaenge 9-10 mm.

Argentinien: Patquia, La Rioja, X, 1932, 6 ♂ (K. J. Hayward). (Edwards).

Im London habe ich notiert: "Dem Aussehen nach gleicht diese Art dem *T. heteroneurus* sehr, doch ist sie kleiner und ganz anders gefaerbt (der Kopf). Der Vorderrand des Fluegels traegt keine deutlichen Doernchen an der distalen Haelfte. Die Borsten auf dem Thoraxruecken roetlichgelb. Bei beiden Arten (*T. angustipennis* und *T. heteroneurus*) sind die Fluegel auf der

ganzen Flaeche stark verdunkelt, die vordere Haelfte bei *T. heteroneurus* ist sehr stark verdunkelt, doch ist die Grenze verschwommen, bei *T. angustipennis* ist die Faerbung auch intensiv, doch ist die hintere Haelfte staerker gefaerbt als bei *T. heteroneurus*, die Faerbung wird hier aeusserst regelmaessig schwaecher zum Hinterrand."

Triploechus novus Willist.

(= *Triplasius novus* Willist, 1893 = *Heterostylum novum* Will. in Painter, 1939 = *Bombylius recurvus* Coquill., 1902, teste Painter).

Der Kopf ist schmaeler als der Thorax. Die Augen sind breit zusammenstossend, die Fazetten sind oben merklich groesser, doch ohne trennende Linie; der Hinterrand der Augen mit einer deutlichen Ausbuchtung. Die Fuehler sind nahe beieinander gestellt, schlank, das 2. Glied ist kurz, fast so lang wie breit und beinahe $\frac{1}{3}$ der Laenge des 1. Glieds, das 3. Glied ist laenger als die beiden ersten zusammen, an der Basis ein wenig verdickt, in der Spitzenhaelfte schlank, mit einer kleinen Borste endigend. Das Stirndreieck ist mit einem medianen Eindruck versehen, das Dreieck und das Gesicht sind dicht behaart. Die Mundoeffnung ist gross, ihr Oberrand befindet sich fast gegenueber der Mitte der Augenhoehe. Ruessel lang, Taster schlank.

Thorax und Abdomen sind mit dichten bueschelfoermigen Haaren bedeckt. Der Hinterleib ist ein wenig laenger als die Brust und der Hinterleib zusammen (augenscheinlich muss man hier "als die Brust und der Kopf" lesen; ob dieser Schreibfehler von mir oder von Williston herruehrt, kann ich jetzt nichts sagen, S. P.). Beine nicht kraeftig, Krallen leicht gekruemmt; Pulvillen beinahe so lang wie die Haelfte der Krallen, deutlich. Drei Marginalzellen sind vorhanden, im uebrigen ist das Gcaeder wie bei *Bombylius*. Die Stirn ist hellgrau bestaeubt, in der Mitte mit schwarzen Haaren bedeckt. Die beiden ersten Fuehlerglieder mit zahlreichen schwarzen Haaren. Das Gesicht mit zahlreichen hellgelblichen Haaren, welche mit schwarzen untermischt sind; die Grundfarbe des obersten Teils des Gesichts ist schwarz; laengs dem Mundrand, das Auge erreichend, breit gelb. Wangen schwarz, graulich bestaeubt. Fuehler, Taster und Ruessel schwarz. Die Hinterkopfshaare sind hellgelblich oder weiss. Thorax und Schildchen mattschwarz, doch fast ganz von langen und zahlreichen hellgelb-

lichen oder weissen Haaren bedeckt; die Seiten des 2. Segments und das letzte Segment sind mit schwarzen bueschelfoermigen Haaren besetzt. Beine schwarz. Fluegel dunkelbraun, laengs der Costa gelblicher, gegen die Spitze lichter. Laenge 11 mm.

1 Exemplar, Panamint Valley, Californien, April, 1891. Das Insekt ist nach allen Merkmalen ein *Bombylius* mit drei Submarginalzellen.

Spaeter (1902) hat Coquillett diese Art, nach den Angaben von Painter, welcher den Typus von *Bombylius recurvus* untersucht hatte, unter dem Namen *B. recurvus* (ebenso ein Maennchen) beschrieben. Das Coquillettsche Exemplar hat eine nicht ganz vollstaendige ueberzaehlige Querader, daher sind nur 2 Submarginalzellen vorhanden.

Painter sagt, dass der Kopf bei beiden Exemplaren (Typen von *T. novus* und *B. recurvus*) ein wenig schmaeler ist als bei den typischen *Heterostylum*-Arten. Ferner zeigt eine Serie Exemplare, dass die Abwesenheit oder Anwesenheit der ueberzaehligen Querader keine Rolle spielt.

R. H. Painter erwaehnt auch ein Weibchen dieser Art, doch fuehrt er keine Beschreibung desselben an; augenscheinlich ist es dem Maennchen sehr aehnlich. Die Art ist in Nord-Amerika (Kalifornien und Arizona) heimisch.

Notes on *Pheidole* (Decapheidole) and the Description of a New Species (Hymenoptera: Formicidae).

By Marion R. Smith,

Bureau of Entomology and Plant Quarantine, Agricultural Research Administration, United States Department of Agriculture, Washington, D. C.

Recently there has been received for determination a number of unusually interesting specimens of *Pheidole*, subgenus *Decapheidole*. These specimens include a new species collected on Barro Colorado Island, Canal Zone, by James Zetek, and also specimens intercepted in plant shipments originating at Medellin, Colombia, and in Guatemala (precise locality not known). The Colombian collection is represented by a single worker, the Guatemalan, by soldiers and workers of a single species. Unfortunately I am unable to name the specimens from Colombia and Guatemala, owing to the very poor descriptions of both *perpusilla* and *decem*. On the other hand, the specimens from Barro Colorado Island possess such distinct and readily recognizable characters that I have no hesitancy in describing them as a new species, *zeteki*.

The ants of *Pheidole*, subgenus *Decapheidole*, bear such a striking resemblance to the various forms of *Pheidole* (*Pheidole*) *flavens* Roger that even an accomplished formicologist could easily err if he did not count the antennal segments, ants of the subgenus *Decapheidole* having 10 segments and those of *Pheidole* (*Pheidole*) *flavens*, 12 segments; in fact, Emery (1894, Soc. Ent. Ital. Bol. 26: 157) described *perpusilla* from soldier, worker, and female specimens from Pará, Brazil, as *Pheidole flavens perpusilla*. Forel (1901, Soc. Ent. de Belg. Ann. 45: 366) described a second species, *decem*, from soldier specimens collected in Trinidad (specific locality not cited), calling attention to its similarity to forms of the *flavens* group. Although Forel noted that the soldier had 10 segments in the antenna he did not establish a new subgenus for *perpusilla* and *decem* until 1912 (Soc. Ent.

de Belg. Mem. 19: 237), but even then he failed to designate a subgenotype. In 1913 Wheeler (N. Y. Acad. Sci. Ann. 23: 80) very appropriately chose *perpusilla* as the subgenotype.

There is very little information available on the biology of these ants. Emery remarked that the colony of *perpusilla* was found nesting under bark in a marshy area in Brazil, and Forel stated that soldiers of *decem* were collected from the trunk of a tree growing in a savannah in Trinidad. The *decem* soldiers were found crawling on the tree trunk in association with members of *Pheidole flavens* var. *gracilior* Forel.

Pheidole (Decapheidole) zeteki, new species

Worker: Length 1 mm. Head (exclusive of mandibles) measured through its greatest breadth and length approximately one and five-hundredths times as long as broad, with distinct but weakly emarginate posterior border, rounded posterior corners and convex sides. Eye located more than its greatest diameter from the base of the mandible; rather prominent, coarsely faceted, the border nearest the mandible forming a rather acute angle which is directed anteroventrally. Antenna 10-segmented. Scape long, the apex at least attaining the posterior border of the head; slender and curved at the base, noticeably enlarged apically. Antennal club approximately one and one-half times as long as the remainder of the funiculus, the last segment of the club distinctly longer than the combined length of the two preceding segments; funicular segments 2 to 5 inclusive broader than long. Frontal area impressed, subopaque, not clearly defined. Anterior border of clypeus rounded, entire. Mandible subtriangular. Promesonotum, in profile, moderately convex, the mesonotum sloping into the distinct but not unusually deep mesoepinotal impression. Base of epinotum, in profile, almost horizontal, bearing a pair of spines, the tips of which are directed lateroposteriorly and slightly upward, the spines approximately the length of the base

of the epinotum. Legs rather short, with incrassated femora and tibiae. Thorax, from above, without promesonotal suture; pronotal humeri very weakly developed, almost imperceptible; mesoepinotal impression rather broad but not deep. Postpetiolar node, from above, convex, approximately one and one-half times as broad as long, broadest in its anterior third. Gaster, from above, subglobular, with truncate base and rather definite humeral angles.

Head, thorax, petiole and postpetiole densely reticulate punctate; sculpturing of head and thorax very coarse, that of the petiole and postpetiole finer, so that the dorsal surface of each node is somewhat shining in certain lights.

Body with well scattered, long, coarse, suberect to erect hairs which appear truncate and enlarged apically; the hairs yellowish or gayish in color. Hairs on legs similar but usually shorter.

Head and thorax dull ferruginous, gaster and appendages lighter. Gaster shining, the appendages less shining.

Type locality: Barro Colorado Island, Canal Zone.

Described from a holotype and five paratype workers collected May to August 1945 by James Zetek. These bear the following label numbers: U. S. N. M. 58042, Zetek 5210, and Lot 45-16638 of the Division of Insect Identification. All specimens have been placed in the United States National Museum.

Paratypes do not differ noticeably in any respect from the holotype. Nothing is known of the biology of this new species.

The worker of *zeteki* can be readily recognized by its very characteristic type of pilosity and by the long antennal scape, the apex of which at least attains the posterior border of the head. A worker of *perpusilla* (in the collection of the United States National Museum), from the original colony but not definitely known to be a cotype, differs from that of *zeteki* in

its short antennal scape, the apex of which lacks a considerable distance of attaining the posterior border of the head, and by the hairs which are neither truncate nor enlarged apically. The hairs of *perpusilla* are also not coarse like those of *zeteki*. Only the soldier of *decem* has been described, but as soldiers and workers have similar pilosity Forel would undoubtedly have remarked about the peculiar pilosity if it were of the same nature as in *zeteki*.

**Espécies Brasileiras de *Stilobezzia* (Dipt. Ceratopogonidae)
e *Zygoneura stonei* nov. nom. (Dipt. Mycetophilidae).**

Por John Lane, Departamento de Parasitologia, Faculdade de Higiene
e Saúde Pública da Universidade de São Paulo.

(Com 9 Figuras)

Espécies Brasileiras de *Stilobezzia*.

Como afirmam Ingram e Macfie (1931), o gênero *Stilobezzia* é de distribuição zoogeográfica quase cosmopolita. Quando esses autores estudaram as espécies do Chile, afirmaram que aí era o gênero predominante. Não nos causou estranheza o fato de termos encontrado numerosas formas novas, pois nas localidades sul-americanas onde coleções de ceratopogonídeos foram feitas, este grupo sempre mostrou-se abundante. Constatamos a presença de algumas espécies originalmente descritas como sendo do Paraguai, mas nenhuma das que ocorrem tanto no Chile como no norte da América do Sul, é representada. O nosso material foi colecionado nos Estados de São Paulo, Rio de Janeiro, Minas Gerais e Espírito Santo, portanto dentro dos limites do centro Tupi (Lane, 1943). Estudamos quinze espécies, das quais onze não descritas ainda. Das quatro restantes descrevemos os alótipos de três e redescrevemos uma (*S. fiebrigi* Kieffer, 1917), pois a diagnose original é deficiente. Os números dos tipos são os da nossa coleção padrão. As medidas usadas neste trabalho obedecem a critério por nós já adotado (Lane, 1946).

O gênero *Stilobezzia* é aqui delimitado segundo os trabalhos de Macfie (1940) e Johannsen (1943). Damos abaixo os caracteres comuns aos adultos das espécies por nós estudadas.

Adulto. — Cabeça: Partes bucais com quase o comprimento da altura da cabeça. Antena com os segmentos flagelares mais longos que largos. Tórax: Mesonoto largo, desprovido de pilosidade mas sempre com as cerdas dorsocentrais, acrosticais, supralares e laterais. Pernas alongadas, sem espinhos, as garras da fêmea representadas por uma longa com dente ou então uma longa e a outra curta. Nos machos as duas garras são sempre curtas. Asa: Primeira célula radial menor que a segunda. Nervura média com pecíolo distinto. Franja provida de elementos longos alternando com outros curtos.

Damos abaixo uma chave para os adultos das espécies por nós estudadas.

Chave para os Adultos de *Stilobezzia*.

1. Asa com manchas escuras 2.
— Asa sem manchas, i. e. hialina 6.
2. Mesonoto castanho, com desenho mais claro formado por pruinossidade 3.
— Mesonoto amarelo-brilhante, com duas estrias longitudinais castanhas. Abdomen amarelado com ornamentação castanha. Asa com duas manchas escuras e nítidas nas nervuras *Rs* e *m-cu*. Basitarso posterior sem espinho *S. fiebrigi* Kieffer
3. Abdomen enegrecido excetuando a marcação branca. Tibia posterior não sarapintada de pontos mais escuros 4.
— Abdomen avermelhado; tibia posterior sarapintada de pontos mais escuros 5.
4. Primeira célula radial curta e em formato de losango. Faixas abdominais com as marcações largas. Fêmures e tíbias posteriores de coloração avermelhada *S. paulistensis* n. sp.
— Primeira célula radial longa e quadratiforme. Faixas abdominais estreitas. Fêmures e tíbias posteriores enegrecidos. *S. rabelloi* n. sp.
5. Balancim com haste clara e capítulo enegrecido. Asa com três manchas além do meio. *S. punctulata* n. sp.
— Balancim totalmente esbranquiçado. Asa com duas manchas além do meio *S. kiefferi* n. sp.
6. Mesonoto brilhante e lustroso 7.
— Mesonoto de cor escura, pruinoso. *S. modesta* n. sp.
7. Espécies sem coloração verde 8.
— Espécie de coloração esverdeada. Tarso posterior sem espinho. Escutelo com quatro cerdas marginais. *S. glauca* Macfie
8. Mesonoto sem manchas nítidas 9.
— Mesonoto amarelado e com três manchas castanho-enegrecidas anteriormente *S. maculata* n. sp.
9. Abdomen amarelado, castanho ou enegrecido 10.
— Abdomen esbranquiçado. Tarso posterior sem espinho. *S. bicolor* n. sp.
10. Abdomen com os tergitos enegrecidos e brilhantes. 12.
— Abdomen com os tergitos de duas cores. 11.
11. Terceiro tergito amarelado, o restante dos tergitos enegrecidos. Tarso posterior sem espinho. *S. bispinosa* Kieffer
— Terceiro tergito, bem como os lados do quinto e sexto, castanho-escuro-brilhantes, o restante amarelado. *S. fluminensis* n. sp.
12. Fêmures unicolores e amarelados ou castanho-claros. 13.
— Fêmures castanho-escuros com pontos enegrecidos 14.
13. Antena com toro amarelado, o flagelo fortemente piloso nos segmentos III a X. *S. macfiei* n. sp.
— Antena com o toro castanho, os segmentos flagelares III a X fracamente pilosos, i. e. normais. *S. travassosi* n. sp.
14. Mesonoto mais claro anteriormente. Fêmur mediano com anel apical claro, o posterior completamente escuro. *S. coracina* Kieffer
— Mesonoto completamente enegrecido. Tanto o fêmur mediano como o posterior com anel apical claro. *S. wygodzinskyi* n. sp.

Não conseguimos colocar *S. silvicola* Kieffer, 1917.

Stilobezzia fiebrigi Kieffer, 1917.

Stilobezzia fiebrigi Kieffer, 1917, An. Mus. Nat. Hun., 51: 309.

Temos duas fêmeas e um macho que nos permitem completar a descrição original que foi feita para um exemplar sem cabeça nem pernas. Aproveitamos esta oportunidade para eleger o alótipo.

Fêmea. — Cabeça amarelada. Clipeo com esparsos pêlos. Palpo enegrecido. Antena com o toro desenvolvido, o flagelo com os segmentos III a X um pouco mais finos além do meio e com os seguintes comprimentos: III 100, IV 57, V 67, VI 64, VII 67, VIII 64, IX 60, X 70. Os segmentos XI a XV são alongados, mais grossos na base e com os seguintes comprimentos: XI 130, XII e XIII 140, XIV e XV 130. Comprimento do conjunto III a X 549. Comprimento do conjunto XI a XV 670.

Tórax: Mesonoto como na descrição original, i. e. mais escuro nas margens e com duas estrias longitudinais indistintas que da margem anterior divergem levemente até alcançar os lados do escutelo. Escutelo amarelado, exceto nas margens laterais e para dentro onde é castanho-escuro, com seis cerdas marginais, sendo quatro no meio e duas nos lados. Pleura amarelada exceto na porção basal da esternopleura e no meio do mesepímero onde é castanha.

Perna: Par anterior amarelado, o ápice da tíbia um pouco mais escuro bem como o basitarso; quarto segmento com bastonetes; garra muito longa e munida de dente. Par mediano amarelado, a base da tíbia levemente mais escura assim como os últimos segmentos tarsais; quinto segmento com bastonetes; garras duas, sendo uma longa e a outra curta. Par posterior com o fêmur levemente engrossado, amarelado, mais escuro internamente e com o ápice enegrecido; tíbia amarela; basitarso enegrecido no ápice, sem espinhos; segundo e terceiro segmentos amarelados; quarto e quinto escuros, o quinto com bastonetes; garra uma única, munida de dente. T. R. 2.

Asa com as nervuras costal, radial e transversal mais distintas, as outras tênues; as manchas nas nervuras e assim distribuídas: a primeira pequena, na base, a segunda na primeira célula radial e *r-m*, a terceira no ápice da segunda célula radial. A primeira célula radial é muito pequena, arredondada; a segunda cerca de cinco vezes o comprimento da primeira, mais larga na base e de formato triangular. Pecíolo da nervura mediana

pouco mais de duas vezes *r-m*. Forquilha da cubital pouco aquém da forquilha da mediana. Balancim com a haste esbranquiçada e o capítulo enegrecido.

Abdomen: Primeiro tergito amarelado exceto grandes manchas laterais castanhas; segundo amarelo com um ponto mediano castanho; terceiro castanho exceto nas margens, no meio e em duas manchas sub-laterais que são amarelados; quarto como o terceiro salvo a mancha amarelada mediana que não existe; quinto ao sétimo amarelados com pequenos pontos no meio, na margem posterior e duas grandes manchas laterais que são castanhas. Esternitos amarelados, o sexto e sétimo com manchas basolaterais castanhas.

Macho. — Antenas (faltam no nosso exemplar). Garras tarsais duas, pequenas, e em todos os pares. Demais caracteres como na fêmea. Genitália: (Fig. 1). Basistilo delgado, espiculoso, esparsamente cerdoso. Dististilo com dois terços do comprimento do basistilo; adelgado para o ápice e não formando bico; margem superior com algumas cerdas, a base espiculosa. Aedeagus em duas lâminas de formato singular e que terminam por dois delgados filamentos dirigidos para fora. Demais estruturas como na figura.

Proveniência do material estudado: — Brasil, Estado de São Paulo, São Roque, XI.1944 (J. Lane col.) um macho que elegemos o alótipo desta espécie. Estado do Rio de Janeiro, Estrada Rio-S. Paulo, km 47, XI.1947 (Petr Wygodzinsky col.). Duas fêmeas. Os exemplares supra estão registrados sob os números 6589, 6590 e 6620.

• *Stilobezzia paulistensis*, n. sp.

Fêmea. — Cabeça. Partes bucais escuras. Clípeo castanho. Palpo enegrecido, o segundo segmento mais longo e largo que os demais, o terceiro, o mais curto. Antena com o toro castanho, o flagelo com os seguintes comprimentos: III 100, IV e V 70, VI e VII 80, VIII 90, X 100, XI e XII 105, XIII e XIV 130, XV 160. O comprimento dos segmentos III a X igual a 695. Comprimento do conjunto dos segmentos XI a XV igual a 630. Ocipício enegrecido.

Tórax: Mesonoto com pequeno espinho anterior, castanho, pruinoso e com desenho formado por áreas mais claras. A cer-

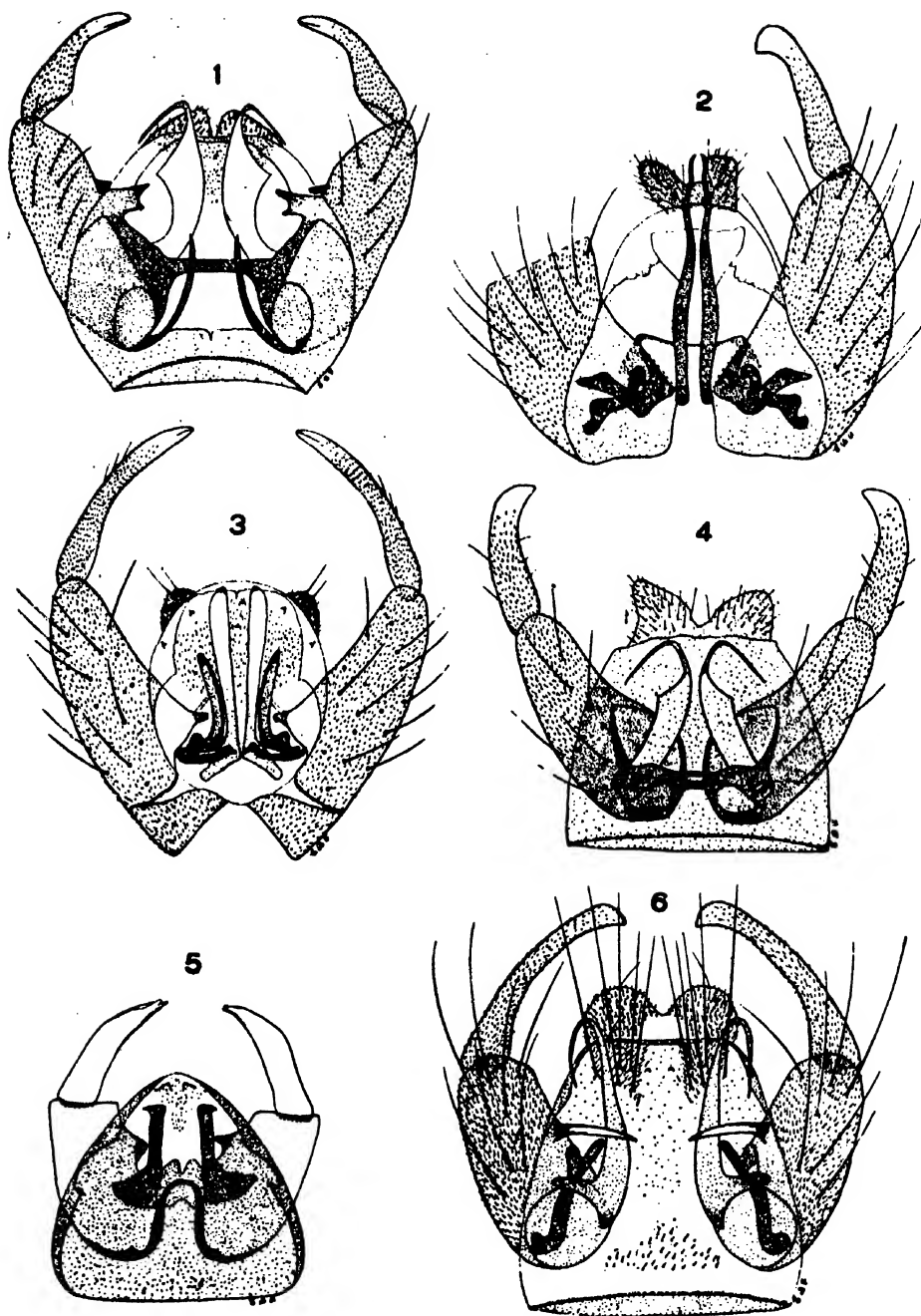


Fig. 1. *Stilobezzia fiebrigi* Kleffer, genitália do macho. — Fig. 2. *S. paulistensis* n. sp., idem. — Fig. 3. *S. rabellot* n. sp., idem. — Fig. 4. *S. maculata* n. sp., idem. — Fig. 5. *S. bicolor* n. sp., idem. — Fig. 6. *S. macfel* n. sp., idem.

dosidade esbranquiçada e distinta, implantada em pontos mais escuros e discretos. Escutelo amarelado, tendo na margem quatro cerdas longas e três menores. Postnoto castanho-escuro, pruinoso e possuindo áreas esbranquiçadas. Pleuras castanhas.

Pernas: Par anterior amarelo-claro, os ápices um pouco mais escuros, tarsos com espinho basal interno no basitarso, quarto segmento enegrecido, quinto sem bastonetes; garras, uma longa e outra curta. Par mediano como o anterior, mas o fêmur e tibia são mais escuros. Par posterior como o par mediano.

Asa com pequena mancha na base e outra na primeira célula radial e *r.-m.* Tais manchas podem ser distintas ou bastante apagadas. Primeira célula radial em forma de losango, a segunda aproximadamente quatro vezes o comprimento da primeira e homogêneamente alongada. Pecíolo da média aproximadamente do comprimento da *r.-m.* Nervura cubital com a forquilha aquém da forquilha da mediana. Macrotríquios ausentes. Balancim com a haste clara, o capítulo enegrecido.

Abdomen com os tergitos enegrecidos exceto largas manchas distais brancas que, do terceiro em diante formam nítidas faixas. Esternitos enegrecidos.

M a c h o. — Antena: flagelo com o penacho fortemente amarelô-dourado, os três últimos segmentos apenas pilosos. Garras tarsais, duas, iguais e simples. Demais caracteres como na fêmea. Genitália. (Fig. 2). Basistilo ovalado e tendo cerca de duas vezes a largura basal, revestido de espiculosidade e esparsa pilosidade. Dististilo pouco mais longo que a metade do basistilo, termina em pequeno bico; espiculoso na base e com esparsas e curtas cerdas. Demais caracteres como na figura.

Tipos: Holótipo macho; alótipo fêmea; parátipos dois machos e duas fêmeas registrados sob os números 6593 a 6598, e um parátipo macho e outro fêmea a serem depositados no Departamento de Zoologia da Secretaria de Agricultura do Estado de São Paulo.

Localidade tipo: — Holótipo, Brasil, Estado de São Paulo, Casa Grande, III.1940 (Barretto e Coutinho col.); alótipo, Estado de São Paulo, Osasco, IV.1939; parátipos do Estado de S. Paulo, Juquiá e Estado do Rio de Janeiro, estrada Rio-S. Paulo, km 47, IX e XII.1944 (J. Lane e Petr Wygodzinsky col.).

Stilobezzia rabelloi, n. sp.

Fêmea. — Cabeça castanho-escura. O segundo segmento do palpo é longo, grosso e pouco mais curto que o conjunto do terceiro e quarto segmentos. Clípeo esparsamente piloso. Antena com o toro mais claro; terceiro segmento do flagelo mais grosso, quarto e quinto mais curtos, sexto ao décimo mais longos, o conjunto dos segmentos III a X pouco mais curto que XI a XV. Os segmentos com os seguintes comprimentos: III 100, IV e V 62, VI 70, VII 82, VIII 94, IX e X 105, XI 164, XII 176, XIII e XIV 164, XV (falta). Ocipício castanho-escuro com áreas pruinosas.

Tórax: Mesonoto com protuberância anterior desenvolvida, romba, lisa; disco enegrecido exceto um desenho formado por porções pruinosas e esbranquiçadas, as cerdas curtas. Escutelo com a coloração do mesonoto e com aproximadamente oito cerdas marginais grandes e pequenas. Postnoto enegrecido. Pleuras enegrecidas salvo áreas de pruinossidade branca.

Pernas: Coxas castanho-escuras, a anterior um pouco mais clara na base; fêmures anterior e mediano com anéis apagados na base e ápice, o posterior totalmente castanho-escuro; tíbia anterior e mediana com anéis, a posterior escura; basitarso com espinho basal, o quinto segmento provido de bastonetes; garras, uma longa e a outra bem curta.

Asa: (Fig. 7). Enfumaçada na porção anterior exceto em determinadas porções que são hialinas; há manchas na base e ápice da primeira célula radial, no ápice da segunda e na nervura *r.-m.*; sem macrotríquios. Balancim enegrecido exceto a porção basal da haste que é mais clara.

Abdomen enegrecido, com estreitas faixas apicais de pruinossidade branca e um pouco mais largas nos cantos.

Macho. — O nosso exemplar não possui antenas. Tórax mais claro. Garras, duas, iguais e bastante desenvolvidas. Faixas abdominais maiores. Demais caracteres como na fêmea. Genitália (Fig. 3): Basistilo adelgado para o ápice, espiculoso e cerdoso. Dististilo pouco mais curto que o basistilo, esparsamente espiculoso e com raras cerdas na margem superior. Aedeagus em forma de lâminas. Demais estruturas como na figura.

Tipos: Holótipo, macho; alótipo, fêmea; parátipo, uma fêmea. Depositados sob os números 6621, 6622 e 6783.

Localidade tipo: Brasil, Estado do Rio de Janeiro, Estrada Rio-S. Paulo, km 47, XI.1944 (Petr Wygodzinsky col.).

Dedicamos esta espécie ao nosso velho amigo o Sr. Ernesto Xavier Rabello do Departamento de Zoologia da Secretaria de Agricultura do Estado de S. Paulo.

Stilobezzia punctulata, n. sp.

Fêmea. — Cabeça: Palpo enegrecido. Antena com o toro amarelado, o flagelo com os segmentos III a X mais curtos, fusiformes, III maior e mais largo, IV a VI globosos, ovalados, VII a X fusiformes, X mais longo. Segmentos XI a XV muito longos e mais de duas vezes o comprimento do conjunto III a X. O flagelo perdeu-se durante a montagem em bálsamo. Ocipício castanho-escuro.

Tórax: Mesonoto com espinho enegrecido, rombo na porção anterior, o disco castanho, pruinoso, com áreas mais claras formando um desenho, as cerdas distintas e implantadas em pontos mais escuros. Escutelo esbranquiçado no meio, castanho nos lados e com cinco cerdas marginais também implantadas em pontos mais escuros. Postnoto enegrecido. Pleuras castanhas com pontos mais escuros.

Pernas: Par anterior com o fêmur amarelado e porções mais escuras, o revestimento formado por pilosidade mais escura. Tibia amarelada mas salpicada de pontos castanho-escuros correspondentes à inserção dos pêlos, o ápice mais escuro. Tarsos amarelados com ápice mais escuro; basitarso com pequeno espinho interno, o quinto segmento com bastonete; garras, duas, sendo uma longa e a outra curta. Par mediano com o fêmur amarelado, o ápice levemente mais escuro, o revestimento formado por cerdas castanho-escuras. Tibia amarelada exceto a base e ápice que são mais escuros e pontos mais escuros salpicando-a ao longo da face dorsal; basitarso com espinho interno longo e distinto, tarsos e garras como no par anterior. Par posterior com fêmur e tibia como no par mediano, a marcação mais distinta e escura; tarsos como no par mediano. T. R. 2.

Asa com três manchas mais escuras além do meio e uma pequena mancha na base; o ápice com áreas enfumaçadas realçando as regiões hialinas. As manchas estão localizadas na base, nas extremidades da primeira célula radial e *r.-m.* e no ápice da segunda célula radial. Macrotríquios reduzidos a um ou outro no ápice da asa. Balancim com haste clara, o capítulo enegrecido.

Abdomen: Tergitos castanhos exceto faixas basais e apicais

nos primeiros três segmentos, apenas apicais no quarto, quinto e sexto; o sétimo quase que totalmente esbranquiçado.

Macho: Desconhecido.

Tipo: Holótipo fêmea registrado sob o número 6591.

Localidade tipo: Brasil, Estado do Rio de Janeiro, Estrada Rio-S. Paulo, km 47, 2.XI.1944 (Petr Wygodzinsky col.).

Stilobezzia kiefferi, n. sp.

Fêmea. — Cabeça: Partes bucais enegrecidas. Palpo enegrecido, o segundo segmento mais grosso, o terceiro menor. Clipeo castanho-avermelhado, com esparsos pêlos brancos. Antena com o toro amarelado, o flagelo com os seguintes comprimentos

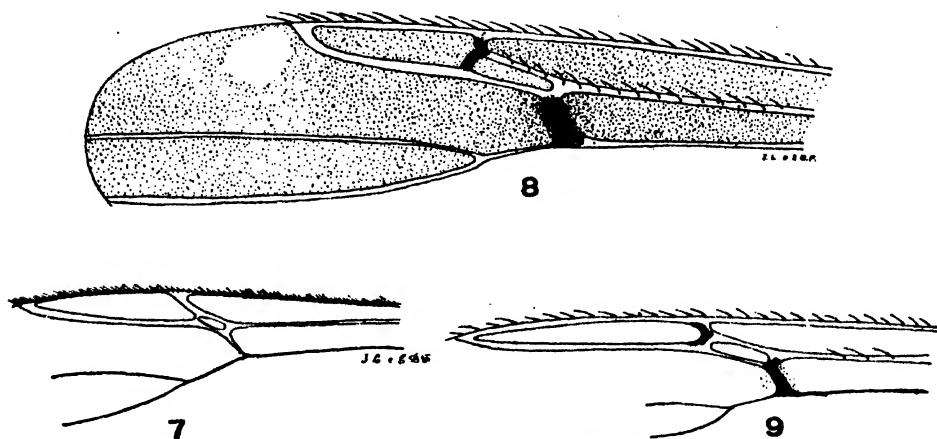


Fig. 7. *Stilobezzia rabelloi* n. sp., primeiras nervuras da asa. — Fig. 8. *S. kiefferi* n. sp., idem. — Fig. 9. *S. modesta* n. sp., idem.

III 100, IV a VI 60, VII a VIII 62, IX 70, X 75, XI e XII 130, XIII e XIV 135, XV 160. Comprimento total dos segmentos III a X igual a 549. Comprimento total dos segmentos XI a XV igual a 690. Ocipício castanho-escuro.

Tórax: Mesonoto com o espinho muito discreto, o disco castanho-escuro, pruinoso, com áreas mais claras formando um desenho, as cerdas implantadas em pontos mais escuros apenas na região posterior. Escutelo esbranquiçado no meio, mais escuro nos lados e possuindo duas cerdas no meio e duas laterais. Postnoto com as margens pruinosas, esbranquiçadas. Pleuras castanhas, exceto inferiormente onde são mais escuras.

Pernas: Coxas castanhas. Fêmures, tíbias e tarsos amarelados exceto os ápices dos fêmures e tíbias e pontos mais escuros

nas tíbias que correspondem à inserção das cerdas. Tarsos amarelados; basitarso com espinho basal; garras, uma longa e outra curta. T. R. 2.

Asa (Fig. 8) sem macrotríquios. Com duas manchas, além da pequena mancha na base da asa. A primeira destas manchas está na base da primeira célula radial e envolve a *r.-m.*, enquanto que a segunda fica situada no ápice de tal célula. Balancim esbranquiçado.

Abdomen: Tergitos castanhos, mais escuros no meio e com faixas apicais esbranquiçadas existindo pontos escuros nos ângulos póstero-laterais.

Macho desconhecido.

Tipo: Holótipo fêmea registrado sob o número 6592.

Localidade tipo: Brasil, Estado de Minas Gerais, Governador Valadares, X.1945 (S. J. Oliveira col.).

Esta espécie é dedicada ao grande especialista dos ceratopogonídeos J. Kieffer que foi dos primeiros a pôr em ordem a taxonomia deste grupo.

Stilobezzia modesta, n. sp.

Fêmea. — Cabeça castanha. Palpo castanho-claro; o terceiro segmento curto; o segundo, o mais longo. Clípeo aparentemente glabro. Antena com o toro castanho, mais claro internamente; flagelo com os seguintes comprimentos: III 100, IV a VIII 45; IX e X 65, XI a XIII 100, XIV 105, XV 150. Comprimento total dos segmentos III a X 510; dos segmentos XI a XV 555.

Tórax: Mesonoto aparentemente sem espinho, e parecendo possuir fossas humerais. Disco castanho, revestido apenas pelas cerdas. Escutelo mais claro e com quatro cerdas marginais. Pleuras castanhas.

Pernas amareladas, as extremidades um pouco mais escuras; quinto segmento com bastonetes; basitarso com pequeno espinho; garras tarsais, uma longa e a outra curta. T. R. 2, 5.

Asa (Fig. 9) sem macrotríquios, hialina, as nervuras como na figura. Balancim esbranquiçado.

Abdomen curto, castanho-escuro.

Macho desconhecido.

Tipos: Holótipo, fêmea; parátipos, duas fêmeas. Registrados sob os números 6599 a 6601.

Localidade tipo: Holótipo, Brasil, Estado do Rio de Janeiro, Angra dos Reis, III.1940 (Lane e Lopes col.); parátipos, Estado do Rio de Janeiro, Tinguá, VII.1940 (Shannon e Lane col.) e Estado de S. Paulo, Casa Grande, XII.1940 (Barretto e Coutinho col.).

Stilobezzia glauca Macfie, 1939.

Stilobezzia glauca Macfie, 1939, Rev. Ent., 10: 139.

Escolhemos a fêmea, abaixo descrita, para alótipo desta espécie.

Fêmea. — Antena com o toro desenvolvido, o flagelo com os seguintes comprimentos: III 100, IV 66 (V a VII faltam), VIII 66, IX 75, X 80, XI e XII 145, XIII 120, XIV 110 e XV 180. Asa com a segunda célula radial cerca de seis vezes o comprimento da primeira. Garras, uma longa e a outra curta. T. R. 2. Abdomen com pontos laterais escuros no primeiro e segundo segmentos, além da marcação mencionada na descrição original. Espermateca uma, arredondada, os cerci tão longos quanto largos. Demais caracteres como na descrição original.

Localidade do alótipo: Brasil, Estado do Rio de Janeiro, Estrada Rio-S. Paulo, km 47, XII.1947 (Petr Wygodzinsky col.).

Stilobezzia maculata, n. sp.

Macho. — Cabeça. Partes bucais amareladas. Palpo (impossível de se descrever). Antena com toro muito grande, amarelado; flagelo fortemente plumoso formando um penacho amarelado que reveste os segmentos exceto os três últimos que são alongados e desprovidos de plumosidade. Ocipício amarelado.

Tórax: Mesonoto brilhante, o disco amarelado e ornado de três manchas castanho-enegrecidas; uma anterior, alongada e duas laterais e arredondadas, situadas entre a raiz da asa e a margem anterior. Escutelo amarelado, os lados castanho-enegrecidos formando duas manchas distintas, aparentemente com cinco cerdas marginais. Pleuras amarelas.

Asa hialina, sem macrotríquios. Primeira célula radial pequena, quadrangular, a segunda pouco mais de quatro vezes o comprimento da primeira, mais larga na base; nervura costal alcançando três quartos do comprimento da asa; pecíolo da média aproximadamente duas vezes o comprimento de *r-m*. Balancim com a haste amarelada e o capítulo enfusado.

Abdomen: Primeiro tergito amarelado, exceto nos lados onde é mais escuro; segundo totalmente amarelado; terceiro enegrecido exceto uma faixa apical amarelada; quarto e quinto amarelados mas com estria longitudinal enegrecida que, na porção distal, forma faixa; sexto e sétimo amarelados, porém com estrias longitudinal, mediana e lateral enegrecidas.

Genitália (Fig. 4): Basistilo adelgado para o ápice, espiculoso e esparsamente revestido de longas cerdas. Dististilo com dois terços do comprimento do basistilo, espiculoso e com raras cerdas na base. Aedeagus em forma de lâminas tortas que terminam em longos filamentos voltados para fora. Demais caracteres como na figura.

Fêmea desconhecida.

Tipo: Um macho registrado sob o número 6603.

Localidade tipo: Brasil, Estado do Rio de Janeiro, Estrada Rio-S. Paulo, km 47, XI.1944 (Petr Wygodzinsky col.).

Stilobezzia bicolor, n. sp.

Mach o. — Cabeça. Partes bucais e palpo esbranquiçados. Antena com o toro grande e amarelado, o flagelo plumoso, o penacho dourado salvo nos três últimos segmentos que são pilosos. Ocipício enegrecido.

Tórax: Mesonoto com o espinho anterior muito pequeno, o disco enegrecido e brilhante, o revestimento restrito às cerdas. Escutelo um pouco menos enegrecido que o mesonoto (as cerdas difíceis de se ver). Pleuras castanho-enegrecidas.

Pernas amarelo-esbranquiçadas; basitarso sem espinho basal; garras tarsais, duas, simples e iguais. T. R. 2, 8.

Asa hialina, sem macrotríquios; primeira célula radial em forma de losango, pequena; a segunda mais larga na base e aproximadamente quatro vezes o comprimento da primeira; pecíolo da mediana longo, isto é, cerca de três e meia vezes o comprimento da nervura *r.-m.* Balancim esbranquiçado.

Abdomen totalmente esbranquiçado.

Genitália (Fig. 5): Basistilo curto, grosso, com uma saliência além do meio e situada no ângulo interno, esparsamente cerdoso e aparentemente sem espiculosidade. Dististilo pouco mais curto que o basistilo, com uma ou outra cerda na margem superior, o ápice modificado em bico. Aedeagus com formato de bastão terminado em um bico voltado para fora em ângulo reto. Demais caracteres como na figura.

Fêmea desconhecida.

Tipo: Holótipo macho. Registrado sob o número 6604.

Localidade tipo: Brasil, Estado de S. Paulo, Osasco, IV. 1939 (J. Lane col.).

Stilobezzia bispinosa Kieffer, 1917.

Stilobezzia bispinosa Kieffer, 1917, An. Mus. Nat. Hun., 51: 310.

Embora a descrição original não seja precisa com relação às características do abdomen, acreditamos que o nosso exemplar corresponda a esta espécie conforme se poderá apreciar pela descrição abaixo.

Fêmea. — Cabeça amarelada. Palpo com o primeiro segmento globoso; segundo longo, cerca de uma e meia vezes o comprimento do terceiro; o quarto é mais grosso e tem uma ou duas cerdas no ápice. Antena com toro grande, amarelo vivo, o flagelo com os seguintes comprimentos: III 100, IV a VI 60, VII e VIII 70, IX 88, X 78, XI 128, XII 130, XIII e XIV 128 e XV 130. Comprimento total dos segmentos III a X igual a 586, dos segmentos XI a XV igual a 644.

Tórax: Mesonoto sem espinho anterior, com depressões laterais, enegrecido-brilhante; as cerdas distintas. Escutelo enegrecido, com quatro cerdas na margem posterior. Postnoto enegrecido-brilhante. Pleuras castanho-escuras.

Pernas: Par anterior amarelado, o mediano e posterior castanho-claros. Basitarso com espinho, quinto segmento com bastonetes; garras, duas, sendo uma muito longa e a outra curta.

Asa hialina e sem macrotríquios. Primeira célula radial em forma de losango, a segunda quase cinco vezes o comprimento da primeira, mais larga na base; nervura costal alcançando três quartos do comprimento da asa; pecíolo da nervura mediana longo, isto é, cerca de três vezes o comprimento da nervura *r.-m.* Balancim completamente esbranquiçado.

Abdomen um tanto curto pois o comprimento é de aproximadamente três vezes a maior largura; castanho-escuro exceto o terceiro segmento que é amarelado, esparsamente cerdoso; cerci curtos e castanho-claros.

Proveniência do material estudado: Um espécime, Brasil, Estado de S. Paulo, Osasco, 28.XI.1937 (J. Lane col.).

Stilobezzia fluminensis, n. sp.

Fêmea. — Cabeça amarelo-pálida. Partes bucais com quase o comprimento da cabeça. Palpo com o segundo segmento quase o dobro do comprimento do terceiro; o quarto pouco mais longo que o segundo. Clípeo com esparsas cerdas. Antena com toro grande, também amarelado; flagelo mais longo que o corpo, os segmentos fusiformes ou alongados.

Tórax castanho-claro. Mesonoto sem espinho anterior, mais escuro nos lados, revestido de cerdas delgadas e amarelo-claras em mistura com aproximadamente seis outras-mais escuras e sobre a raiz da asa. Escutelo amarelado e com quatro cerdas marginais.

Pernas amareladas; basitarso posterior sem espinho; garras, uma longa e outra muito curta. T. R. 2, 5.

Asa hialina, desprovida de macrotríquios. Primeira célula radial em forma de losango, a segunda cinco vezes o comprimento da primeira e mais larga na base; nervura mediana com pecíolo longo, isto é, aproximadamente duas e meia vezes o comprimento de *r.-m.*; forquilha da média à mesma altura que a da cubital.

Abdomen amarelado, com o terceiro segmento, os lados do quinto e o sexto castanho-escuro-brilhantes.

Macho desconhecido.

Tipo: Holótipo uma fêmea registrada sob o n. 6609.

Localidade tipo: Brasil, Estado do Rio de Janeiro, Angra dos Reis, Japuíba, IV.1940 (Lane e Lopes col.).

Stilobezzia travassosi, n. sp.

Fêmea. — Cabeça castanha. Clípeo com uma ou outra cerda. Antena com toro grande, o flagelo com os seguintes comprimentos: III 100, IV e V 65, VI a IX 70, X 85, XI a XIII 150, XIV 120, XV 160. Conjunto dos segmentos III a X igual a 595, dos segmentos XI a XV igual a 730. Ocipício com orla de cerdas também castanhas.

Tórax: Mesonoto sem espinho anterior, o disco glabro, castanho-brilhante, mais escuro nos lados, as cerdas distintas. Escutelo castanho-claro com quatro cerdas marginais sendo que duas no meio e as outras duas laterais. Postnoto castanho-brilhante. Pleura castanha, porém mais escura no meio.

Pernas castanho-claras; tíbias com esporões distintos; basitarso sem espinho; quinto segmento munido de bastonetes; garras, uma longa e a outra curta.

Asa hialina, sem macrotríquios. Primeira célula radial alongada, pequena, a segunda com cinco vezes o comprimento da primeira, mais larga na base; nervura costal alcançando três quartos do comprimento da asa; pecíolo da nervura mediana duas vezes o comprimento da transversa *r.-m.* Balancim esbranquiçado.

Abdomen com os tergitos enegrecidos, brilhantes exceto o primeiro no meio e o segundo que possui estria mediana além do ápice do sétimo e o oitavo que são castanhos. Esternitos enegrecidos, sem brilho, o sétimo e oitavo castanhos.

Macho desconhecido.

Tipo: Holótipo fêmea registrado sob o n. 6608.

Localidade tipo: Brasil, Estado do Espírito Santo, Santa Teresa, IX.1943 (L. Travassos col.).

Dedicamos esta espécie ao nosso amigo Prof. Lauro Travassos do Instituto Osvaldo Cruz do Rio de Janeiro.

Stilobezzia coracina Kieffer, 1917.

Stilobezzia coracina Kieffer, 1917, An. Mus. Nat. Hung., 51: 311.

A descrição original desta espécie é baseada em um macho. Temos duas fêmeas das quais escolhemos uma para alótipo.

Fêmea. — Cabeça: Partes bucais castanho-escuras. Palpo enegrecido com o segundo segmento pouco mais longo que o quarto enquanto que o terceiro tem cerca da metade do comprimento do segundo. Clípeo castanho, com raros pêlos. Antena com o toro grande, castanho, o flagelo com os seguintes comprimentos: III 100, IV a IX 60, X 70, XI 115, XII e XIII 120, XIV 130, XV 120. Comprimento dos segmentos III a X igual a 530, dos segmentos XI a XV igual a 605. Ocipício castanho-escuro.

Tórax: Mesonoto sem espinho anterior mas com depressões látero-anteriores. Disco castanho-escuro, brilhante, exceto nos lados e anteriormente onde é amarelado; as cerdas distintas. Escutelo da cor do mesonoto, as margens um pouco mais claras, com quatro cerdas sendo que duas no meio e duas nos lados. Postnoto da cor do mesonoto. Pleuras castanho-escuras, brilhantes, com áreas mais claras.

Pernas: Par anterior amarelado, tarsos amarelados, o quinto segmento com bastonetes, garra tarsal, uma, com dente basal. Par mediano com o fêmur castanho-escuro salvo o ápice que é amarelado, tibia castanho-clara exceto o ápice que também é amarelado; tarsos esbranquiçados, o quinto segmento com bastonetes e mais escuro; garra, uma, longa e com dente basal. Par

posterior com o fêmur castanho-escuro, a tibia amarelada salvo a base que é mais escura e o ápice que é castanho-escuro; basitarso inerme, tarsos esbranquiçados, o quinto segmento mais escuro e com bastonetes; garra, uma, longa e provida de dente. T. R. 2, 5.

Asa hialina, sem macrotríquios. Primeira célula radial alongada, a segunda mais larga na base e cinco vezes o comprimento da primeira; nervura costal com três quartos do comprimento da asa; pecíolo da nervura mediana cerca de quatro vezes o comprimento da nervura transversa *r.-m.*, esta curta. Balancim com a haste castanho-clara e o capítulo enegrecido.

Abdomen largo na base e cerca de duas vezes a maior largura; tergitos negro-brilhantes. Esternitos castanho-escuros, opacos.

Tipos: Alótipo fêmea. Registrado sob o número 6606.

Proveniência do material estudado: Brasil, Estado de S. Paulo, Osasco e São Roque, VIII.1939 (J. Lane col.).

Stilobezzia wygodzinskyi, n. sp.

Fêmea. — Cabeça. Palpos enegrecidos. Clípeo castanho-avermelhado. Antena com o toro avermelhado, o flagelo com os seguintes comprimentos: III 100, IV a VI 57, VII 61, VIII 66, IX e X 72, XI 111, XII 122, XIII 138, XIV 144 e XV 140. Comprimento do conjunto III a X igual a 532, de XI a XV igual a 770. Ocipício castanho-escuro.

Tórax: Mesonoto enegrecido, brilhante, largo, as cerdas dessa cor e muito discretas. Escutelo da cor do mesonoto. Pleuras enegrecidas e brilhantes.

Pernas: Coxas enegrecidas. Par anterior com o fêmur, a tibia e os tarsos castanho-claros, o fêmur um pouco mais escuro na base; garra, uma, longa e com espinho. Par mediano com o fêmur castanho-enegrecido nos dois terços basais, amarelado para o ápice; tíbias e tarsos como no par anterior. Par posterior com o fêmur enegrecido até pouco além do meio, o restante amarelado; tíbias e tarsos como no par anterior; basitarso sem espinho. T. R. 2, 5.

Asa com a nervura costal indo até cerca de três quartos do comprimento da asa; primeira célula radial muito pequena, alongada, a segunda aproximadamente cinco vezes o comprimento da primeira e mais larga na base; pecíolo da mediana cerca de duas e meia vezes o comprimento da *r.-m.*, a haste inferior sésil. Balancim com a haste escura e o capítulo enegrecido.

Abdomen com os tergitos enegrecidos, brilhantes, e cerca de duas e meia vezes a maior largura, de formato ovalado.

Macho desconhecido.

Tipos: Holótipo um macho registrado sob o número 6773.

Localidade tipo: Brasil, Estado de S. Paulo, Serra da Cantareira, Cuca, XII. 1940 (Travassos e Guimarães col.).

Dedicamos esta espécie ao Dr. Petr Wygodzinsky do Instituto de Experimentação Agrícola do Rio de Janeiro, que muito tem contribuído para o estudo dos ceratopogonídeos.

Stilobezzia macfieii, n. sp.

Fêmea. — Cabeça amarelada. Palpo com o segundo segmento com quase o dobro do comprimento do terceiro, o quarto ainda mais longo. Clipeo com raras cerdas douradas; toro grande e amarelado, o flagelo com os segmentos III a X enegrecidos, revestidos de cerdas longas e grossas dessa cor. Comprimento dos segmentos: III 100, IV a VIII 60, IX 65, X 85, XI a XIII 140, XIV 130, XV 160. Ocipício castanho-amarelado.

Tórax: Mesonoto sem espinho anterior, o disco subquadrangular, brilhante, enegrecido, com áreas mais claras, e, nos lados, adiante da asa e em determinadas incidências de luz uma mancha de reflexos purpúreos; cerdas discretas e esbranquiçadas. Escutelo mais claro que o mesonoto e com quatro cerdas marginais longas. Pleuras castanhas, brilhantes, com áreas mais escuras.

Pernas: Coxa anterior amarelada, a mediana amarelada no ápice, o restante, bem como a coxa posterior, castanhos; fêmures e tíbias amarelados, basitarso posterior com espinho basal, quinto segmento com bastonetes; garras, duas, uma longa e outra curta.

Asa hialina, sem macrotríquios. Primeira célula radial assemelhando-se, em formato, a um losango; a segunda mais larga na base e seis vezes o comprimento da primeira; nervura costal com três quartos do comprimento da asa; pecíolo da nervura mediana duas e meia vezes o comprimento da *r.-m.* Balancim com a haste enfusca e o capítulo enegrecido.

Abdomen totalmente enegrecido.

Macho. — Antena com o flagelo plumoso, o penacho dourado na base, o ápice castanho, os três últimos segmentos apenas pilosos. Pernas mais escuras. Garras tarsais, duas, pequenas e iguais. Escutelo, abdomen e balancim mais claros. Genitália (Fig. 6): Basistilo uniforme, espiculoso e esparsamente cerdoso. Existe no meio da margem interna uma longa e grossa cerda voltada para dentro. Dististilo pouco mais longo que o basistilo, espi-

culoso, a margem diferenciada, o bico curto. Aedeagus em forma de duas lamíneas deigadas, terminando em um longo filamento voltado para baixo. Demais estruturas como na figura.

Tipos: Holótipo fêmea, alótipo macho. Registrados sob os números 6610 e 6611.

Localidade tipo: Brasil, Estado de S. Paulo, Osasco, IV.1939 (J. Lane col.); Estado do Rio de Janeiro, Angra dos Reis, Japuíba, III.1940 (Lane e Lopes col.).

Dedicamos esta espécie ao Dr. J. W. S. Macfie da Liverpool School of Tropical Medicine and Hygiene da Inglaterra, um dos maiores especialistas neste grupo de dípteros.

Summary.

The author studies the species of *Stilobezzia* collected in Southern Brazil during several years. Eleven species are described as new; the allotypes of three known species are selected and one is redescribed. A key is given for the species studied and comments are made about their zoogeographical distribution.

Agradecimentos.

Grande parte do material aqui descrito foi colhido e doado pelos Drs. Petr Wygodzinsky, do Instituto de Experimentação Agrícola do Rio de Janeiro, S. J. Oliveira, da Geigy do Brasil S./A. e M. P. Barretto, da Faculdade de Medicina da Universidade de S. Paulo. Por mais esta gentileza o autor consigna seus sinceros agradecimentos. A ilustração deste trabalho foi feita pelo Sr. E. B. Ferraz.

Zygoneura stonei, nov. nom. (Mycetophilidae).

After the publication of my paper on Brazilian *Mycetophilidae* (*Fungivoridae*), Dr. Alan Stone of the United States National Museum, called my attention to the fact that I had overlooked *Zygoneura maculipennis* Skuse, 1891. This being the case, I take this opportunity to rename the species described by myself as *Zygoneura maculipennis* (Rev. Ent., 17 (3): 348) to *Zygoneura stonei* n. n. in honor of Dr. Alan Stone.

Bibliografia.

- Ingram, A. e Macfie, J. W. S., 1931, Diptera of Patagonia and South Chile. 2 (4): 191.
 Johannsen, O. A., 1943, A generic synopsis of the *Ceratopogonidae* (*Heleidae*) of the Americas, a bibliography, and a list of the North American species. — An. Ent. Soc. Am., 36 (4): 763-791.
 Lane, J., 1943, The geographic distribution of *Sabethini*. — Rev. Ent., 14 (3): 409-429.
 — 1946, New Neotropical *Ceratopogonidae*. — Rev. Ent., 17 (1/2): 204 (nota).
 Macfie, J. W. S., 1940, The genera of *Ceratopogonidae*. — An. Trop. Med. & Par., 34 (1): 13-30.

A Note on *Phlebotomus trinidadensis* Newstead (Dipt., Psychodidae).

By Edward McC. Callan, Entomology Department, Imperial College of Tropical Agriculture, Trinidad, B. W. I.

Sandflies of the genus *Phlebotomus* are important pests especially in tropical and subtropical regions and several species have been implicated as vectors of human diseases. Among the best known are *Phlebotomus argentipes* Ann. and Brun., which has been proved to be the vector of *Leishmania* infections causing kala-azar and Oriental sore in India and elsewhere, and *P. papatasii* Scop., the vector of the virus of sandfly fever in southern Europe, Africa and Asia.

In the New World there are several notorious species. *P. intermedius* Lutz and Neiva is known to be the vector of *Leishmania* infections responsible for espundia in Central and South America. *P. verrucarum* Tns. and related species have been shown to transmit the bacillus, *Bartonella bacilliformis*, causing the two phases of Carrion's disease known as Oroya fever and verruga peruviana, endemic in certain valleys of the Andes of Ecuador, Peru, Bolivia and Chile.

As far as I am aware only three species of *Phlebotomus* have been recorded from the Caribbean area. The first record of the genus from this region is that of Knab (1913), who described *P. atroclavatus* as a new species from Trinidad, British West Indies. Its identity is somewhat uncertain and no further specimens appear to have been collected since it was first described.

P. trinidadensis was described by Newstead (1922) also from Trinidad. Descriptions are given of both sexes. Newstead states that it is a relatively small species, the female being larger than the male and having the following dimensions: — length of body 2.1 to 2.9 mm., length of wing 1.6 mm. and length of posterior leg 3.1 mm.

More recently Theodor (1932) has re-examined what he believes to be *P. trinidadensis* and has described the buccal cavity and spermatheca. The records of Myers (1935) and Adamson (1939) of *Phlebotomus* sandflies in Trinidad almost certainly refer to this species.

Several authorities maintain that *P. trinidadensis* is not a valid species, preferring to regard it as a synonym of *P. cruciatus* Coq. This view, however, is not shared by Dr. O.

Theodor, of the Hebrew University, Jerusalem, to whom, through the courtesy of Sir Guy A. K. Marshall, F. R. S., formerly Director of the Imperial Institute of Entomology, I am indebted for the determination of this species.

The only other record of the genus from the West Indies appears to be *P. guadeloupensis* described by Floch and Abonnenc (1945) from Guadeloupe, French West Indies.

As far as the habits of *P. trinidadensis* have been studied they do not appear to differ markedly from those of other species of the genus. Distribution is apparently sporadic in Trinidad. Almost all the observations were made at the Imperial College of Tropical Agriculture at St. Augustine, some eight miles east of Port of Spain, but the species probably occurs in many other parts of the island. During the day the adults are inactive, hiding in dark and sheltered places. They avoid both wind and sunlight and are normally not seen until after sunset and then only when the wind has dropped. Some sandflies are said not to enter brightly lighted buildings, but this species appears to be attracted rather than deterred by artificial light. The majority of records at St. Augustine are of individuals feeding in the evening under bright electric lights.

Little is known of their breeding habits. The females appear to be short-lived, normally laying eggs soon after feeding and probably not surviving for more than a day or two after oviposition. In the laboratory eggs have been laid by females from 12 to 24 hours after feeding. Three such individuals kept separately in 3 in. by 1 in. glass vials laid 18, 22 and 25 eggs respectively and died within 24 hours of oviposition. The larvae probably live under stones, in crevices in the concrete walls and floors of houses and in other dark and moist places. No larvae have been discovered, however, although such situations have been searched in close proximity to houses in St. Augustine where sandflies have been caught.

The females alone feed on blood and a meal is necessary before the eggs are laid. *P. trinidadensis* has only been observed feeding on man, although other species are known to feed on various mammals and birds and even on cold-blooded animals such as frogs and lizards. At St. Augustine some 200 individual observations have been made of sandflies feeding. They have been recorded biting during all the months of the year, but about

70 per cent. of the records are from January to June. In Trinidad the dry season normally extends from January to April and the sandfly population increases, as the season progresses, reaching a maximum in April or May. There is usually a sudden decrease with the advent of the rainy season and from July to December the population is at a minimum. The biting cycle is quite characteristic. The main biting period is from 7 to 11 p. m. local time, over 90 per cent. of the records being between these hours. The only occasions when feeding has been observed during daylight occurred in shade and are as follows:

Brasso, Central Range, 500 feet, 15 December 1939, 3 p. m.

I. C. T. A., St. Augustine, 24 February 1940, 5 p. m.

El Aripo, Northern Range, 1,500 feet, 25 March 1942, 4 p. m.

The bite is extremely painful. The sensation is more acute than the bite of most mosquitoes and lasts for some time after the sandfly has fed. There is no warning of approach and the presence of the insect is usually not noticed until the mouth parts pierce the skin. Once feeding has started the sandfly is not readily disturbed and can be quite easily captured. On the average feeding lasts from 2 to 3 minutes, although feeding periods as short as one minute and as long as 6 minutes have been occasionally noted.

The following account is typical of a number of records of sandflies attacking the writer, who is not normally very susceptible to insect bites. Sandfly started to feed near the elbow at 6.30 p. m. Fed undisturbed until 6.32 p. m. When gorged with blood, abdomen of sandfly bright red and distinctly swollen. Pain acute from start of feeding and lasting in all for about 5 minutes. Pain succeeded by pronounced itching which gradually disappeared in about 30 minutes. Swelling on arm apparent within one minute of insect leaving wound. White swollen area about 5 mm. in diameter surrounded by reddish inflamed area 2 cm. in diameter. Both oedema and erythema persisted for about one hour. In the case of more susceptible persons, the after effects are more pronounced. The oedema especially may be more marked and itching may persist for some 24 hours.

P. trinidadensis is not known to be associated with any disease in Trinidad. As it is most abundant in the dry season, it has been suggested that it may be connected with outbreaks

of a mild form of a febrile disease similar to dengue fever which sometimes occurs in epidemic form in Trinidad at this time of the year. It seems more probable however that this disease would be transmitted by mosquitoes rather than sandflies. Protection from sandfly bites can be effected by the use of repellents such as dimethyl phthalate and indalone applied to the skin. The itching following the bites can be greatly reduced by the local application of various prescriptions containing cocaine, menthol, camphor, calamine and other substances.

References

- Adams on, A. M., 1939, Observations on biting sandflies (*Ceratopogonidae*) in Trinidad, British West Indies. — *Trop. Agriculture, Trin.* 16: 79-81.
- Floch, H. and Abonnenc, E., 1945, Description d'un phlébotome nouveau de la Guadeloupe. — *Publ. Inst. Pasteur Guyane* no. 96: 1-4.
- Knab, F., 1913, A new American *Phlebotomus*. — *Insecutor Inscitiae Menstruus, Washington* 1: 135-137.
- Myers, J. G., 1935, The sand-fly pest (*Culicoides*). — *Trop. Agriculture, Trin.* 12: 71-73.
- Newstead, R., 1922, A new species of *Phlebotomus* from Trinidad. — *Ann. Trop. Med. and Parasit., Liverpool* 16: 47-50.
- Theodor, O., 1932, On the structure of the buccal cavity, pharynx and spermatheca in South American *Phlebotomus*. — *Bull. ent. Res.* 23: 17-23.

On the Economic Importance of the Capsidae in the Guinean Region.

By F. A. Squire, Department of Agriculture, Njala, Sierra Leone.

(With 7 graphs)

Introduction.

The entomology of cacao in the Guinean region is of peculiar interest in that it presents a picture of the gradual adoption by indigenous insects of a comparatively recently introduced crop. This is well illustrated by the most destructive pests of cacao in the region, the Capsidae. One of the characteristics of the family is the ease with which its members turn from wild to cultivated plants. Thus *Pleisicoris rugicollis* Fall. evidently lived on *Salix* and *Alnus*, now it attacks the apple and the currant; *Lygus* has adopted numerous crops all over the world, and *Helopeltis* has a great variety of cultivated hosts in the tropics. In the Guinean region cacao has been adopted by no fewer than five capsids and there is reason to fear that other closely related species may do likewise as the crop becomes more extensively grown.

There is evidence of the introduction of cacao into West Africa at various times during the 18th and 19th centuries but no great expansion took place until the beginning of the 20th century. Today the producing countries are in order of their importance: the Gold Coast, Nigeria, the Ivory Coast, French Equatorial Africa, San Thomé and Fernando Po, French Togoland, the Belgian Congo, Liberia, and Sierra Leone and the annual production for the whole region is not far short of half a million tons. Yet it must be stressed that the cacao growing areas are but insignificant islands in the vast forest of West and West Central Africa.

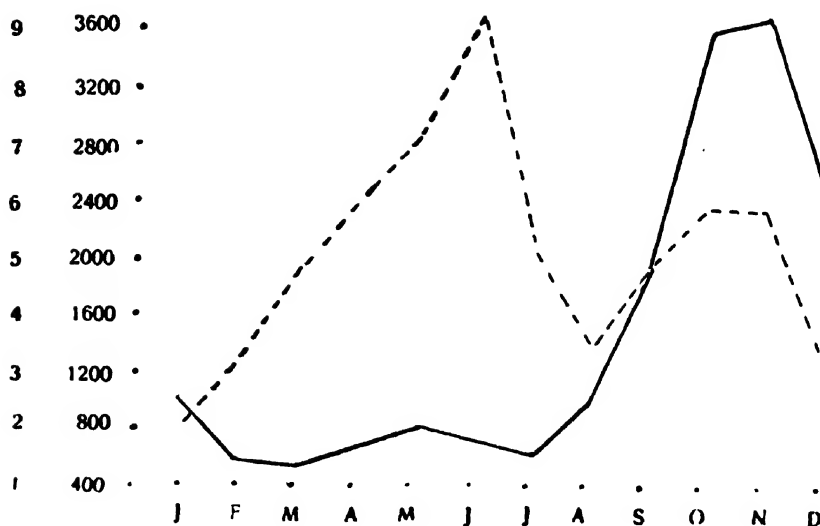
The region is mainly one of the high rainfall and impenetrable evergreen or semi-deciduous forest best seen in its unaltered state in Liberia, in French Equatorial Africa and in the great bend of the Congo where the air traveller may fly for hours over unbroken jungle of indescribable density. Elsewhere it is more or less modified according to the density of the population and agricultural practices. The rainfall ranges from about 20 to 300 inches a year but most of the cacao is grown in those parts enjoying a moderate rainfall of 60 to 80 inches. There is generally a fairly severe dry season except near the equator where it tends to be short and mild. The soils are mostly developed from granitic or related igneous rocks (except in the Cameroons and the volcanic

gulf islands of San Thomé, Fernando Po, and Principé, where the underlying rock is basalt) and are predominantly concretionary red earths.

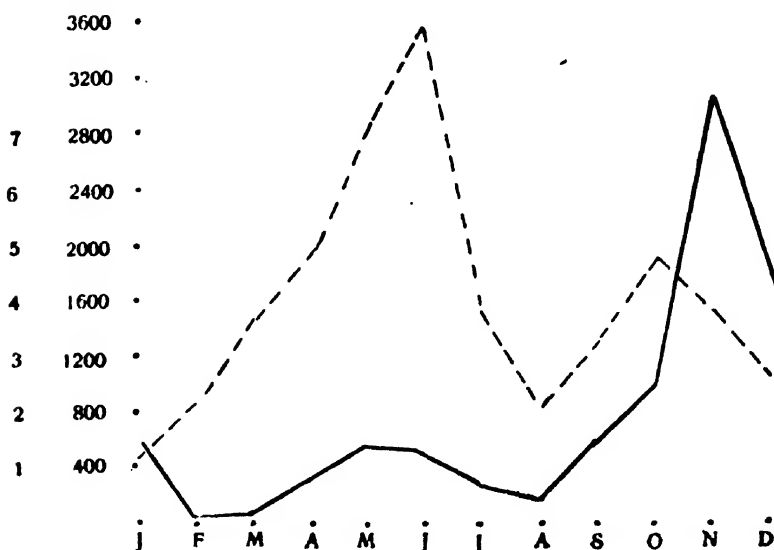
One of the peculiarities of cacao is that it is seldom grown by itself but usually under high forest shade and often together with other crops so that it is intimately associated with indigenous plants and consequently with their enemies. Many of the shade trees, moreover, belong to the same family as cacao or to related families, and this together with the superior attractiveness of cacao to insect owing to its luxuriant growth, frequent flushing, and almost perennial fruiting habit, constitutes a position fraught with danger. Moreover the cacao forest is peculiarly favourable to insect life in general for here the dense canopy of the natural forest is greatly reduced admitting light and air and there are many gaps caused by fallen trees, disease, insect attack as well as by villages and food farms. In these situation of varying light and temperature and air movement life becomes astonishingly abundant.

The fruiting of cacao.

Since the fruiting of cacao has a marked influence on its entomology it is necessary to consider the subject briefly. It has been studied by Auchinlek and Knowles (3) and by Skidmore (47) in the Gold Coast; and by Haquart (25) in the Congo. There is a correlation between the yield in any month and the rainfall four to six months previously; consequently different rainfall distributions result in different crop distributions. Thus in the Gold Coast there are two crop distributions. This is illustrated by graphs 1 and 2, constructed from Skidmore's data of rainfall and yields at Asuansi and Aburi. Graph 3 shows the relationship at Ganda Sundi in the Mayumbe district of the Belgian Congo. It will be seen that the same principle holds good although the Mayumbe being south of the equator has its seasons at different times of the year from those in the Gold Coast. At Lukolela (graph 4) in the Congo about 1 degree south there is a short semi-dry season in June, July and August, a very brief one in January. Even this is reflected in the harvest, but it will be seen that the main crop amounts to not more than 60 per cent of the total whereas at Ganda Sundi it amounts to 70 per cent and in the Gold Coast it may be as much as 80 per cent. Graph 5 shows the position at Gazi near Stanleyville and less than 1 degree from the equator. Here there is no dry season but there



Graph. 1. Aburi, Gold Coast. Rainfall -----; Yield ————. (From Skidmore's data.) (Explanation: *numbers*, first row: rainfall in inches; second row: No. of pods; *letters*: months.)



Graph. 2. Asuansi, Gold Coast. Rainfall -----; Yield ————. (From Skidmore's data.) (Explanation: *numbers*, first row: rainfall in inches; second row: No. of pods; *letters*: months.)

is a short break in the rains which is preceded by a crop which amounts to 90 per cent of the total.

Cacao capsids and closely related species.

The following list gives the distribution and host plants of capsids which are known to attack cacao and of closely related species, occurring in the same region and in similar ecological conditions. They all belong to the sub-family Bryocorinae. The list is based very largely on the work of Schouteden in the Belgian Congo and Box in the Gold Coast.

Sahlbergella singularis Hagl., throughout the region. Host plants: *Cola togoensis*, *C. diversifolia*, *Ceiba pentandra* sp., *Berrya amonilla*, *Theobroma cacao*.

Sahlbergella soror Schout., Belgian Congo. Host plant unknown.

Sahlbergella ghesquierei Schout., Belgian Congo. Host plant unknown.

Sahlbergella maynei Schout., Belgian Congo and Nyasaland. Host plant: *Uapaca* sp.

Distantiella theobroma (Dist.), Sierra Leone to the Cameroons. Host plants: *Ceiba pentandra*, *Theobroma cacao*, *Citrus*.

Distantiella collarti (Schout.), Belgian Congo. Host plant unknown.

Bryocoropsis laticollis Schum., Gold Coast, Nigeria, Spanish Guinea, Belgian Congo. Host plants: *Theobroma cacao*, *Anona squamosa*, *A. muricata*, *Uvariadendron* sp., *Uvaria* sp.

Yangambia (Idioaspis) macarangae (China), Gold Coast. Host plant: *Macaranga horaeifolia*.

Odoniella apicalis Reut. et Popp, Gold Coast, Belgian Congo. Host plants: *Macaranga laurentii*, *Cercetis Afzelii*, *Culcasia angolensis*.

Odoniella unicolor Popp, Central Africa. Host plant unknown.

Odoniella reuteri Hag., Belgian Congo. Host plant: *Theobroma cacao*.

Odoniella rubra Reut., Gold Coast. Host plant: *Piper guineensis*.

Odoniella camerunensis Schum., Cameroons. Host plant: *Piper guineensis*.

Lycidocoris mimeticus Reut. et Popp, Belg. Congo, Uganda. Host plants: *Randia*, *Mitragyna*, *Coffea* and other Rubiaceae.

Ealincola thoracicus (Dist.), Belgian Congo. Host plant: Rubiaceae.

Ealincola (Lycidocoris) modestus Dist., Gold Coast. Host plants: *Myrtagyna macrophylla*, *Cinchona*, *M. stipulosa*.

Pantilioforma impressopuncata Schum., Sierra Leone, Spanish Guinea. Host plant unknown.

Chamus bellus Dist., Belgian Congo. Host plant: *Alchornea cordifolia*.

Chamus tuberculatus Dist., Belgian Congo. Host plant: *Psidium guajava*.

Chamus boxi China, Gold Coast. Host plant: *Combretum racemosum*.

Poppiusia combretorum China, Gold Coast. Host plant: *Combretum* sp.

Physophoroptera sp., French Cameroons. Host plant: *Pachylobus edulis*.

Helopeltis bergrothii Reut., throughout the range. Polyphagous.

Early records and taxonomy.

From the list given above it will be seen that there are five capsids recorded on cacao.

Sahlbergella singularis was first described by Haglund (26) from the French Congo in 1895. The first illustration

appeared in Kirkaldy's (30) paper in 1903. In 1905 Busse sent some specimens from the Cameroons to Kuhlitz (31) who, believing he had a new genus, named it *Dematostages contumax*. A year later, Reuter (43) showed this species to be identical with *S. singularis* Hagl. Reuter had specimens sent him by Schouteden from the Belgian Congo and re-described the species more minutely.

Bryocoropsis laticollis was described by Schumacher (46) from Spanish Guinea in 1917. In 1929 China (10) described a new species *B. cotterelli* from the gulf island of Fernando Po, but as it differs from *B. laticollis* mainly in colour, and as capsids show local variations in this respect there is reason to doubt, as China himself points out, if it is really a different species. In this paper it is assumed to be identical with *B. laticollis*.

Distantiella theobroma was described by Distant (16) in 1909 under the name of *Sahlbergella theobroma* from specimens sent him from the Gold Coast. In 1914 China (9) removed it to the new genus *Distantiella*.

Helopeltis bergrothii was described by Reuter (44) in 1910. According to Ghesquière (21) there are at the Musée du Congo at Tervueren in Belgium no fewer than five varieties of this species, and three of *H. sanguineus*. Mayné and Ghesquière (38) record four other species from the Belgian Congo but as the taxonomy of the genus is uncertain at present, and as *H. bergrothii* is evidently very variable the insect will be referred to simply as *H. bergrothii* in the discussion.

The original home of the capsids.

There is very little doubt but that *S. singularis* originated in the Congo or at least in the eastern part of the range in view of the many species in the Congo and the biological complex round *S. singularis*. *Helopeltis* too is characterised by numerous species as already noticed. This multiplicity of species in the Congo fauna is seen in other insects: thus the Congo has 14 of the 22 known species of tsetse fly, a circumstance that has been ascribed to the extent and varied nature of the country but which may be due to the existence long ago of an archipelago in the vast region which is now the Congo basin.

There are four facts regarding *Distantiella* worth recording: it occurs at the western end of the Guinean region but not at

the south eastern end; it appears to be moving eastward; its native host plant has not been found; nor has it so far yielded any parasite. These facts indicate that this species is not a native of the Guinean forest region, but that it probably comes from the arid north an idea to which its intense black colour lends support.

Status as cacao pests.

S. singularis first appears as a pest of cacao at Moliwe plantation near Victoria in the Cameroons in 1902 where it is recorded by Warburg (52) simply as "die Rindenwanze". According to various writers at about this time great damage was done to young and old trees. Some 40 per cent of all the trees were attacked and many of the three year old ones killed in a few days, while hundreds of slightly older ones had to be cut back below the crown. Of the oldest trees thousands had to be destroyed. The complicated nature of the problem, it is interesting to note, was recognized almost immediately. Warburg (52), von Faber (20), Zwingenberger (57), Winkler (56), Strunk (50) and other writers comment on contributory or aggravating factors such as bad soil, poor shading, drought, and the invasion of damaged trees by fungi. The pest is next recorded from Ashanti in the Gold Coast by Graham in 1908 (24) and by Dudgeon in 1910 (18). From published reports as that time we learn that the insect is spreading rapidly and that many farms have been ruined. The natives are alarmed and talk of "Sankonuabe", "go back to your palms", cacao is doomed, a terse expression giving the measure of *Sahlbergella*. In 1913 it is recorded in Nigeria and in the following year in the Belgian Congo. To-day it is known as a pest wherever cacao is grown throughout West and Central Africa, with the exception of the islands of San Thomé which has apparently not yet been invaded. It is recognized as a formidable and insidious enemy not only on account of its immediate destructive effects but, as will be shown, by reason of its disastrous pathological sequelae.

Distantiella theobroma is first recorded as a pest of cacao by Dudgeon (18) in 1909 in Ashanti and Akim. It is interesting to note that at one place mentioned, Abremponsu, about 18 miles east of Begoro, where new cacao had been planted in an isolated place in the heart of the forest, it was attacked and wiped out by this species. It was also found damaging old trees in other places. Lemborn (33) first records it in Nigeria on cacao

just south of Ibadan in 1914. It has also been taken in Sierra Leone though not on cacao and Box found it in the French Cameroon on a wild host in 1940. It has not been recorded from the Belgian Congo. Thus it has a more restricted range than *S. singularis* and does not appear yet to have adopted cacao as a host in some places, but on the other hand its marked preference for young cacao in the Gold Coast makes it a great danger to the industry, since it hinders the establishment of new plantations and discourages farmers from extending the crop.

Bryocoropsis laticollis is a new comer as a cacao pest. It was first recorded as such in the Gold Coast in 1939 and at about the same time at Eala and Lukolala in the Congo and in the island of Fernando Po. Unlike the other cacao capsids which attack stems and pods alike, it confines itself to pods on which it is often found closely associated with the other capsids. Consequently though it may take heavy toll of the fruit it is not injurious to the tree and is therefore far less important. Moreover, even more than *D. theobroma* it is still in the process of adapting itself to cacao. Thus in Nigeria it has actually been taken on its native host next door to cacao on which, however, it has not been recorded in that country.

Helopeltis bergrothii was recorded as a cacao pest in the Gold Coast by Dudgeon (18) in 1909, by von Faber (20) in the Cameroon in the same year and by Mayné (37) in the Belgian Congo in 1913. It extends throughout the Guinean region and may occasionally become numerous in certain places, but owing perhaps to its conspicuous colouring and overt feeding habits it never reaches a high population over vast areas as do the other capsids. It attacks both pods and young shoots and can be just as destructive as the other capsids, when it is numerous. Golding states that it is attracted to *Sahlbergella* pockets and is a contributory factor in preventing their recovery (23). Generally speaking, however, *Helopeltis* does not compare with *S. singularis* or *D. theobroma*, and must be regarded as a minor pest.

Odoniella reuteri Hagl. has only once been recorded as a pest of cacao, to wit, by Mayné and Ghesquière in the Mayumbe district of the Congo.

Distribution of the capsids in the field.

Perhaps the most striking feature of the *Sahlbergella-Distantiella* problem is the strong tendency on the part of the capsids to congregate on groups of cacao trees which consequently become severely damaged in sharp contrast to the surrounding cacao. They are irregular in shape and vary in size from a few square yards to a quarter of an acre or more and often persist in the same place for years, the tide of battle between the capsids and the cacao trees ebbing and flowing according to the growth cycles of the trees and fluctuations in the insect population. This curious concentration of the pest into pockets is difficult to explain. At first the investigator may be persuaded that soil factors play an important part but this impression is soon dispelled as more and more pockets are seen on all types of soil and in all sorts of topographical situations. According to Charter (8) capsids have been noted attacking cacao on every earth on which it is grown in West Africa. Naturally unfavourable soil conditions may affect some pockets as aggravating factors but they do not help to explain the origin of the pockets. This explanation is to be sought rather in shade relationships. It was observed throughout the Guinean region that the pockets are characteristic only where the cacao is grown under shade; in countries like Nigeria and, according to Posnette (42), the Ivory Coast, where the crop is cultivated very largely in the open with little or no shade, there the capsid attack takes the diffuse form and separate pockets are hardly even seen, and the species involved is predominantly *Sahlbergella*. It was also observed, moreover, in the Gold Coast that the pockets are frequently associated with the silk cotton tree *Ceiba pentandra*, but the reason for this is not understood as *S. singularis* has not been found on *Ceiba* in the Gold Coast though it is well known to breed on this host in the Belgian Congo, and *Distantiella* generally attacks only young *Ceiba* trees.

Age of host and ration of capsid species.

A factor governing the ratio of *Sahlbergella* to *Distantiella* present in the capsid pockets is the age of the host plants. Twenty pockets were sampled over a period of seven months and the species ratio compared with the age of the hosts. The results are given below:

<i>Age of the cacao in years</i>	<i>Percent. of Sahlbergella</i>	<i>Percent. of Distantiella</i>
3-5	1	99
5-10	10	90
10-15	36	64
15-20	80	20
20-25	80	20
25-30	88	12

It will be seen that this confirms the general impression regarding the preference of *Distantiella* for younger cacao but at the same time shows that *Distantiella* is of some importance even in the oldest cacao. It should likewise be stressed here that in the Belgian Congo where *Distantiella* is unknown *Sahlbergella* attacks 3-5 year old trees and is quite as capable as *Distantiella* of hindering the establishment of new plantations.

Nature of primary damage.

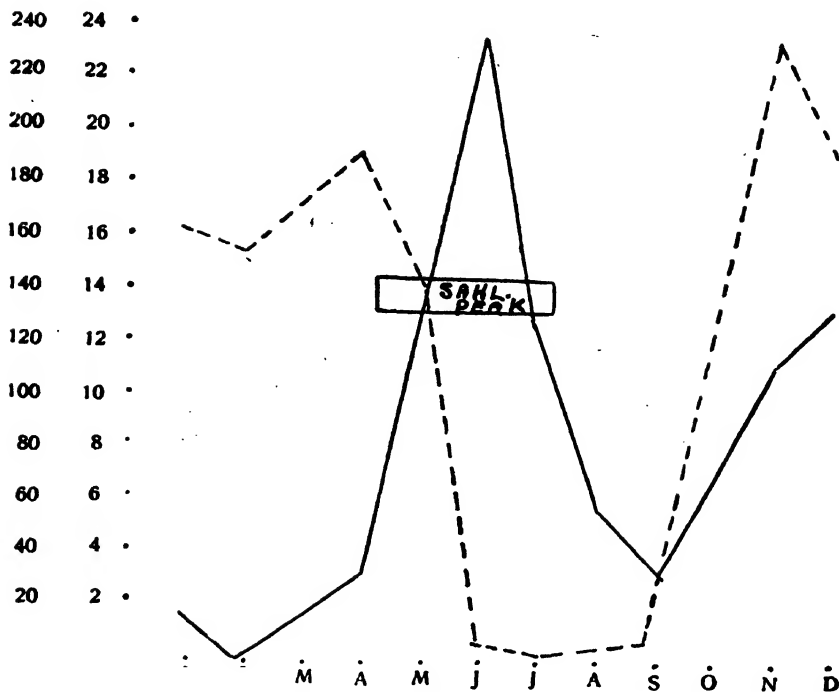
The damage is best illustrated in the case of the young cacao shoot. Within a few minutes of the commencement of feeding an elliptical watermark appears at the site of the puncture spreading up and down the stem and also laterally. This rapidly turns black showing that the underlying tissue has been killed. Two or three such punctures round the stem generally suffice to kill it. In section it is seen that the underlying cortical tissue between the epidermis and the vascular bundles is collapsed or destroyed. The medullary rays between the bundles and the bundles themselves are often severely damaged and pith may be affected. The secretion seems to have an affinity for the cambium. The older the shoot the less extensive and irreparable the damage and the sooner the plant is able to recover from the injury directly due to the insect but as we shall see secondary infections often set in which may cause more trouble than the primary lesions. In order to study the path of the stylets, shoots with bugs feeding on them were dipped into boiling water which brought about instantaneous death. The body was then severed from the stylets the course of which could be traced by careful hand sectioning. It was found that in the case of young shoots the stylets reached far into the pith whilst in older shoots they more frequently exploited the region of the cortex or the vascular bundles. They do not always penetrate at right angles to the surface but may take a curved course in the cortex. The position of the proboscis is frequently changed during feeding as is seen in the characteristic digging action of the bug while it is sucking.

The cause of the damage is not difficult to determine. Organic causal agents as a cause of the primary damage may be excluded on *prima facie* grounds for the destruction is far too rapid and is fully accomplished far too soon to be due to such a cause. Mechanical damage cannot be ruled out entirely on account of the considerable dimensions of the stylets which are given below and on account of the digging action already mentioned. But the main injury to the tissues is undoubtedly caused by the salivary secretion pumped into the plant by the insect during feeding.

Stage	<i>S. singularis</i>	<i>D. theobroma</i>
1st instar	0.8 mm	0.6 mm
2nd instar	1.0 mm	0.7 mm
3rd instar	1.2 mm	1.0 mm
4th instar	1.8 mm	1.6 mm
5th instar	2.3 mm	2.0 mm
adult (♂ or ♀)	2.8 mm	2.5 mm

In thickness the stylets are comparable with the diameter of the cortical cells of the young cacao shoots.

It was frequently observed that the amount of damage is out of proportion to the number of insects present. This is due to the extensive destruction of the tissues round the site of the punctures, a phenomenon that is characteristic of other capsids as well e. g. the apple capsid *Pleisicoris rugicollis* and the tea *Helopeltis*; and the work of Smith (49) in the case of the former and of Leach and Smeeth (34) in the case of the latter describe damage to plant tissues very similar to that produced by the cacao capsids. This is due to the nature of the saliva injected into the plants by the insects. Unfortunately the phrase "toxic saliva" has been adopted to describe the secretion. In fact all saliva has digestive properties and in the case of insects the enzymes present are correlated with the nature of the diet. Polyphagous insects may have several enzymes in their saliva. In the case of sucking insects which attack living tissue the enzymes naturally possess hystolytic properties which as in the case of the capsids kill the tissues round the site of the punctures but the term "toxic" is singularly inapt in this connection. In the case of some capsids this property is highly developed and Smith describes how the glands from *Pleisicoris* and *Lygus pabulinus* produced a violent reaction when placed on slices of potato. Similar experiments were carried out with salivary glands of *Sahlbergella* and *Distantiella*. While the results were not so striking as those described by Smith the hystolytic properties



Graph. 3. Ganda Sundi, Belgian Congo. Rainfall - - - - -; Yield ———. (After Hacquart). (Explanation: numbers, first row: rainfall in mm.; second row: percentage of crop; letters: months.)

of the secretion were nevertheless clearly demonstrated by the areas of collapsed tissue surrounding the spot where the glands had been placed. Thus it is easy to demonstrate that it is the saliva which causes the extensive hystolysis incidental to feeding. In order to study the precise effect of the saliva on plant tissues and cells it was found more profitable to experiment with thin hand sections of plant tissue. Young cacao stems were tried first of all but were found to be unsuitable on account of the quantity of mucilage present. The latter protects the section in a mechanical sense by forming a capsule round it and moreover tends to coagulate the secretion. For this reason sections of cucumber were found to be more suitable and it was possible to demonstrate that one of the effects of the secretion is to digest the inner lamellae cementing the cells together so that the entire cells easily separated. From this it may be deduced that pectinase or some similar enzyme is present in the secretion. The latter appeared to have no digestive action on cellulose such as cotton wood yet the cucumber cell walls were jellified after a few hours similar

results were obtained with all stages of *S. singularis* and *D. theobroma*.

The labial glands.

The labial or salivary glands are situated in the thorax during the early instars and in the case of *Helopeltis* remain there throughout the life. In the case of *Sahlbergella*, *Distantiella* and *Bryocoropsis* they move backward during development and in the adults are wholly in the abdomen extending laterally more than half way towards the apex. In the female they are wrapped round the ovaries. This unusual backward displacement of the salivary glands is correlated with their extraordinary development. In the adult the gland proper consists of four elongated granulomatose lobes, two directed forward and measuring about 1 mm. in length, and two others twice as long and extending backwards. Between the latter there is a sac with non-glandular walls measuring about 1 mm. in diameter and evidently functioning as a reservoir. From it a duct runs forward to the head where it doubles back and joins the main gland at the junction of the four lobes. At this point another duct arises and leads to the mouth parts. Both ducts have glandular walls and a central channel supported by taenidia.

The nature of the secondary damage.

While the primary damage appears almost immediately and reaches its full extent in a few hours owing to the rapid action and exhaustion of the salivary secretion, the secondary damage is not evident for several weeks and may persist for years. It takes the form of a canker. About three weeks after the primary injury the proliferation of new tissue sets up pressure which results in the rupturing of the dead cortex and the bark is split and exfoliated. The wound may heal or repair fail and an open canker result with the old wood showing between typical callus lips. The cankers continue to enlarge with the branch that bears them. Similar cankers follow attack by *Helopeltis bergrothii* on cacao, cotton, tea, and other plants and *Sahlbergella* and *Distantiella* are capable of initiating them on hosts such as *Cola togoensis*, *Ceiba pentandra*, and *Berrya amonilla*.

The etiology of the cankers is interesting. Experiments conducted at Tafo by the present writer show that when three year old cacao saplings are fed upon by a single capsid for but 24 hours typical cankers frequently result after about a month, thus showing that cankers can be initiated without repeated attacks.

On the other hand the capsids are strongly attracted to damaged trees which are therefore liable to repeated injury and it is almost certain that this is a contributory cause of the persistence and enlargement of the canker. The association of saprophytic and weakly parasitic fungi with capsid lesions has been stressed by nearly every writer on the subject. Recently C r o w d y (15) found that one feeble pathogene *Calonectria* is often found in the cankers. These fungi tend to spread from the cankers into the surrounding healthy tissue and militate against the recovery of the host. Other adverse factors are exposure, drought, poor soil, and in fact any condition which places an extra strain on the plant. It is perhaps well to emphasise as L e a c h and S m e e have done in the case of the *Helopeltis* in Nyasaland that the enemy to control is an insect and not a fungus (34).

In view of the generalized character of the fungi found associated with the cankers it was not thought likely that they are biologically transmitted by the capsids though mechanical inoculation of superficial fungi could hardly be avoided. Nevertheless an examination of the salivary glands was made in collaboration with Mr. O w e n, mycologist, at the West African Cacao Research Institute. The following method was employed:

The capsids are killed by severing the head, the legs are amputated, and the ventral surface of the abdomen painted with a 1:000 aqueous solution of mercuric chloride which was left to dry. An incision is made laterally between the 2nd and 3rd sclerites with a sterile needle and the sclerites moved aside so as to expose the salivary gland. As the needle used has been in contact with the mercuric chloride, another sterile needle is employed to inoculate from the exposed salivary gland into an acid medium. The results were negative.

Bionomics.

The life history of *Sahlbergella*, *Distantiella*, and *Bryocoropsis* has been described by C o t t e r e l l (14), and that of *Helopeltis* by L e a n (35). The egg to adult periods are respectively 38, 36, 34 and 33 days. There is therefore very little difference between them in this respect. *Helopeltis* has a much lower fecundity, however, laying only about half as many eggs as *Sahlbergella* and *Distantiella*, which together with its conspicuous colouring and complete lack of furtive habits may explain why though widespread in distribution it so seldom attains great numbers and is not a pest of any consequence. *Bryocoropsis*

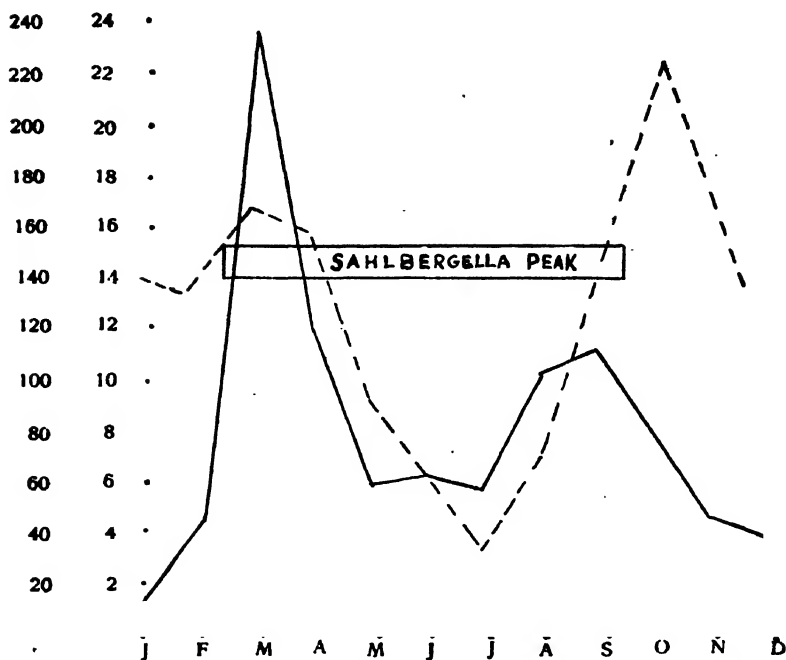
confines itself in the field to pods. When it is bred on shoots in the laboratory its life history is considerable longer than on pods. Cotterell remarks on the high egg mortality of *Bryocoropsis* and states that often the eggs are only half buried in the plant tissues and that the mortality is frequently as much as 50 per cent. This is very different from *Sahlbergella* and *Distantiella* which have an egg viability of seldom less than 100 per cent. The nymphal mortality on the contrary is high. In the case of some colonies kept under observation half of the nymphs disappeared during the 19 days of their nymphal life. This is attributed mostly to predaceous enemies.

Lean (35) has drawn attention to the complicated structure of the egg filaments of *Helopeltis*. They are composed of bundles of trachea like tubes arising within the body of the egg and opening separately all along the surface of the filament and its terminal bulb in raised osteoles. This description is equally applicable to the eggs of *Sahlbergella* and *Distantiella*, and similar complex egg filaments are of course well known in the Heteroptera. Their function is quite obscure but it is possible that they are nothing more than rather fancy micropyles. On the other hand they may have a respiratory or transpiratory function in which case they might be of some economic importance since they are exposed and could be destroyed by spraying. Unfortunately the present writer has not yet had access to Kullenberg's "Eggs of Swedish Capsids" (32).

The following observations on the structure and function of the egg filaments may be of interest. Viewed from the side the eggs are slightly curved. That of *Bryocoropsis* has filaments of nearly equal length that on the convex side being only slightly shorter and measuring about 0.6 mm. In the case of *Distantiella* and *Sahlbergella* the filaments on the concave side is twice as long as that on the convex side.

The filaments are outgrowths of the chitinous egg envelop and arise just below the seat of the operculum. They are packed with tracheavid ducts which open in raised osteoles all over the surface of the filament but especially on its slightly swollen extremity.

When these filaments were singed with a red-hot needle care being taken not to touch the egg itself, the latter failed to develop. From this it is concluded that the filaments have a vital function during the development of the egg.



Graph. 4. Lukolela, Belgian Congo. Rainfall - - - -; Yield ———. (After Hacquart). (Explanation: numbers, first row: rainfall in mm.; second row: percentage of crop; letters: months).

Seasonal fluctuations.

Bryocoropsis is dependent both in the case of its native hosts and cacao on fruits so that it is most numerous during the cacao seasons. In the case of *Sahlbergella* and *Distantiella* it is rather different. Both species breed quite happily on the vegetative parts of their hosts in the absence of any fruit. Especially is this true of *Distantiella* on young cacao. Yet they tend to disappear towards the end of the dry season, and it is difficult, to escape the conclusion that the extreme hot and dry conditions preceding the break of the rains are unfavourable to the capsids. On the other hand the main fluctuations are undoubtedly independent of seasonal influences directly. The enormous increase in population which takes place during the crop months is certainly an edaphic phenomenon due to the superior quality of pods as food. Where there are sharp rainfall and crop peaks as at Ganda Sundi *Sahlbergella* too fluctuates violently, whereas in equatorial regions which enjoy a well distributed rainfall and long crop seasons the capsid curve too is flattened out and the pest is present in great numbers for most of the year. To sum up therefore it may be stated that the direct

influence of the seasons on the capsid population is but slight compared with that of the edaphic factor introduced by fruiting.

Varietal differences in susceptibility.

Nearly all the cacao in West Africa is the type known as San Thomé or West African Yellow Amelonado, a variety of forasteiro characterised by its yellow pod which is roughly twice as long as broad, with shallow grooves and only a slightly bottle neck or none at all. According to Cheesman (11) it was introduced into Fernando Po in the 16th or 17th century from an unknown source in South America. According to van Hall (27) this variety or one very close to it is grown in South America including Venezuela where it is known as Sambito. It is the worlds commercial cacao *par excellence*. Although by no means the only type introduced into West Africa, it has come out top owing to its high yield and early attainment of maximum production. It is a remarkable fact that 10 year old plantations can yield as high as 800 Kg./Hec. Other varieties with long, red, deeply grooved pods are occasionally seen wherever cacao is grown and are quite extensively cultivated on some of the plantations in French Togoland.

Bredo (7) states that these long red podded types exhibit a marked degree of resistance to *Sahlbergella* in the Congo and Mallamaire (36) in the Ivory Coast makes the same suggestion. The present writer observed that there was hardly any sign of damage on this type of cacao on the old German plantation at Agou, near Palime in French Togoland while according to the management capsids are of little importance there. It was also observed at the Botanic Gardens at Eala in the Belgian Congo that by far the most susceptible variety judging by old cankers and fresh injury on pods and shoots was the W. A. Yellow Amelonado. It was observed at Asuansi in the Gold Coast that a certain tree of the Trinitario type always escaped severe injury while those around it suffered badly. From this source budwood was taken by Mr. Posnette of Central Cacao Research Station at Tafo and extended. Experiments to compare the two varieties in point of resistance to *Sahlbergella* were carried out by the present writer. The method was to select comparable portions of branches ob budded and on seedling trees which will be designated R. and O. respectively. A single female was caged on each for a period of 24-36 hours after which it was removed

and the number of sunken areas counted. The results are given below:

No. of Pair	<i>Sahlbergella</i> No. of Punctures		<i>Distantiella</i> No. of Punctures	
	R	O	R	O
1	16	7	12	18
2	12	0	14	24
3	6	14	22	15
4	12	22	8	10
5	15	14	11	18
6	9	17	2	4
7	1	14	11	9
8	2	21	0	22
9	5	10	0	19
10	9	22	8	17
11	8	13	8	25
12	0	15	16	26
13	0	18	0	11
14	10	4	0	30
15	0	7	0	23
16	2	10	20	0
17	7	10	14	7
18	17	12	0	15
19	6	0	9	0
20	20	20	15	15
21	13	27	15	13
22			0	10
	170	277	185	331

After six weeks the number of trees showing bark-split and fungal infection on the damaged shoots were counted. The results are shown below (F. I. == Fungal Infection; B. S. == Bark-Split):

<i>Sahlbergella</i>				<i>Distantiella</i>			
R		O		R		O	
F.I.	B.S.	F.I.	B.S.	F.I.	B.S.	F.I.	B.S.
6	8	8	2	15	9	10	8

It will be seen that there was less damage on the grafted trinitarios than on the seeding Amelonados and this is borne out by statistical analysis, but there does not appear to be any difference in the amount of fungal infection and bark-split. It was observed that the grafted trees assumed a spreading form with multiple fan branches as opposed to the single spiral shoot of the seedlings and that the capsids nearly always attacked the fan branches dorsally or ventrally i. e. not in the line of the leaves which are arranged laterally, thus the grafted tree has two advantages: The leaves are not affected by the punctures to

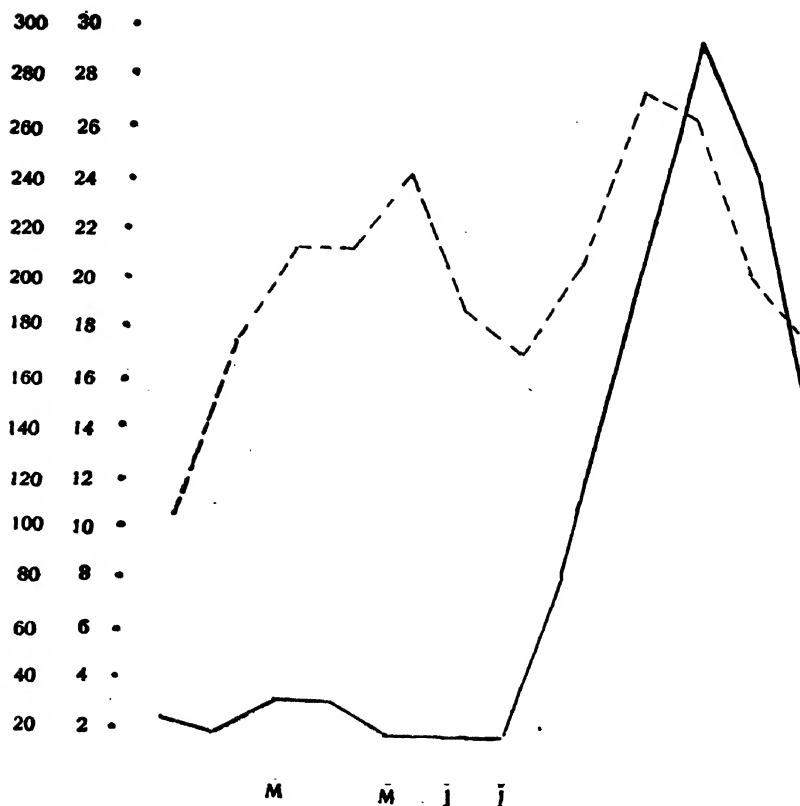
the same extent as on the spiral shoots, and the tree owing to its branched form is better able to reassert itself after one of its branches has been attacked.

Resistance due to environmental factors.

There is a certain amount of evidence that plant nutrients may play a part in controlling capsid damage. Thus Andrews (1) claims that in the case of the tea *Helopeltis* there is a correlation between the ratio of available potash to available phosphoric acid and the extent to which bushes suffer from attack. According to Cotterell it is the practice on at least one plantation in Fernando Po to apply nitrogen, potash and phosphorus in various proportions to *Sahlbergella* pockets and that it is stated that the cacao in these pockets is thereby resuscitated and kept reasonably free from attack. The soils of this island are mainly derived from basalt and are deficient in potash.

Alternative host plants.

These have already been enumerated for the different species of capsids. It remains to consider their ecology and distribution. *Ceiba pentandra* (L.) Gärtn. has been recorded as a host of *D. theobroma* throughout its range i. e. from Sierra Leone to the Cameroons. In the Belgian Congo where *D. theobroma* is not known *Ceiba* is also a host of *S. singularis* but curiously enough where the two species of capsids overlap it is attacked only by *D. theobroma*. It is hard to explain this odd behaviour especially as the two species live cheek by jowl on cacao. It is possible that *S. singularis* prefers older trees as in the case of cacao and thus escapes notice. Mayné (37) records finding this species breeding high up in one of these trees. The present writer has, however, found the capsid in all stages of development on *Ceiba* saplings. *D. theobroma* certainly prefers young succulent specimens. The destructive effect of the secretions on the plant is even more striking than that on cacao. The bugs congregate to feed on the growing points or just below them, causing extensive die-back, gummosis and typical cankers which persist and enlarge. Some years ago a Kapok plantation at Yangambu near Stanleyville in the Congo was abandoned owing to the ravages of *S. singularis*. Mayné and Ghesquière (38) record finding it on *Ceiba* and on another Bombacaceous plant *Bombax flameum* Ulbrich both in cacao plantations as well as in regions where cacao has



Graph 5. Gazi, Belgian Congo. Rainfall -----; Yield ———. (After Hacquart). (Explanation: *numbers*, first row: rainfall in mm.; second row: percentage of crop; *letters*: months).

never been introduced in the Barumbu and Lusambo districts. These authors state that the insect readily goes over to cacao when it is planted in the vicinity of these trees. It is interesting to note that Box (5) states that in the French Cameroons which seems to be the eastern threshold of *D. theobroma* this species is found on *Ceiba* but has not yet gone over to cacao.

Authorities are generally agreed that *Ceiba* is an early introduction from the neotropical region. Today it is one of the commonest trees throughout the Guinean region. It has a wide adaptability and occurs in evergreen forest, on arid plains, and often at a considerable altitude. Almost every village has at least one of these gigantic trees. It is one of the most striking features of the West African landscape. It is uncommon however in true virgin forest as in the south eastern parts of Sierra Leone though

even here it is common near villages. In the cacao farms of the Gold Coast it often stands three to the acre and is frequent everywhere.

There appears to be some uncertainty about the identity of these trees. Botanical writers such as Duchesne (17), Aubreville (2) and Irvine (29) agree that there are at least two varieties namely *C. pentandra* (L.) Gaertn. var. *caribaea* and var. *indica*. The former being an early introduction and the commonest by far, the latter a recent introduction from the east for the production of kapok. Ghesquière is of the opinion that there are three species. *C. thonningii* Chev. "le grand fromager originair de l'Amérique Central"; *C. caribaea* (D. C.) Chev. the commonest; and *C. pentandra* (L.) Gaertn. the cultivated kapok of the east and equivalent to var. *indica*. If it is accepted that the genus is not native to West Africa it will be seen that the native host of *D. theobroma* is unknown.

***Cola togoensis* Engl. et Krause and *Cola diversifolia* de Wild et Th. Dur.**

As these species are so similar and as it is not unlikely that they are really one and the same, they are best treated together. *C. togoensis* was first recorded by Box (6) as a host of *S. singularis* in the Gold Coast. Bredo in the Belgian Congo found *C. diversifolia* heavily infested with the same capsid in 1931 in the vicinity of a cacao plantation which he states became infested from that wild host. The present writer found the capsid on this plant in the equatorial province of the Congo and observed many trees with typical cankers. These two *Cola* species cover the whole range from the Ivory Coast to the Congo and are common in evergreen and in semi-deciduous forest as an understorey tree, but especially frequent in clearings, and along traces and roads. *C. togoensis* also frequents the parts of the dry Accra plains. *C. diversifolia* is often seen along the edge of the high forest in cacao plantations in the middle Congo. In the *lingua franca* of this region, Lingala, it is called Ngai-ngai and is well known to the natives on cacao plantations as a host of *Sahlbergella*. Both the vegetative parts and fruits are attacked, but the plant is tougher and more woody than either *Ceiba* or cacao and does not appear to suffer much although small cankers are present on the stems as well as on the fruits. In Nigeria the present writer has observed *C. togoensis* in a precisely similar environment round cacao farms surrounded by high forest and showing similar damage

and it is also recorded in the Ivory Coast by Aubreville (2). There is not much doubt that these widely distributed species are the primitive hosts of *S. singularis*. Like the latter they are not recorded from San Thomé (19).

Another host of *S. singularis* recorded in Sierra Leone and the Gold Coast is the introduced ornamental *Berrya amonilla* Roxb. (Tiliaceae) a native of India. It suffers severely and generally becomes gnarled stunted and stag-headed but is seldom killed as the plant gets a flying start with the first rains before it becomes reinfested by the capsids which disappear during the dries. It was observed at Njala in Sierra Leone that *Berrya* trees growing in shaded situations generally escape attack. Other hosts recorded are commercial cotton (*Gossypium* sp.) by Patterson (41) and commercial cola *C. acuminata* or *nitida* by Golding (23). Patterson states that in trials which he made with other malvaceous plants he found that the bug could live on *Hibiscus sinensis* and *Thespesia lampas*. It has also been recorded on *Theobroma bicolor*. Another tree of the mixed semi-deciduous forests which is strongly suspected of harbouring *S. singularis* is *Cistanthera papaverifera* Chev. (Sterculiaceae). Whereas *Sahlbergella* and *Distantiella* are associated exclusively with the Malvales, *Bryocoropsis* appears to have strong ties with the Anonaceae. It is of interest to note, however, that recently some specimens of an unknown capsid strongly resembling both *Sahlbergella* and *Bryocoropsis* were received from the Cameroons from M. Pascalet who records that they were found damaging *Anona muricata*. *Bryocoropsis laticollis* was first recorded in the Gold Coast as a pest of *Anona squamosa* and was not noticed as an enemy of cacao until 1939. Both these Anonas are of course introduced. K. O. Darbo of W.A.C.R.I. found another member of the Anonaceae, a species of *Uvariadendron* with *B. laticollis* breeding on it at Owena in Southern Nigeria and a different one near Oda in the Gold Coast also infested with the same capsid. He also records it on *Uvaria* sp. In both cases only the flowers and fruits were attacked. The present writer was informed in the Congo that *Anonidium* sp. is attacked by *Sahlbergella* but was unable to verify this. It is quite likely that it is actually a capsid near to this genus.

The host plants of *Helopeltis* are so numerous and so widely different that there is no point in enumerating them. It is of interest to record, however, that a great many of them are ecologically associated with cacao.

It will be seen from the list given above that other important families of capsid plant hosts are the Rubiaceae, the Euphorbiaceae, and the Meliaceae. In many cases the hosts are indigenous wild or cultivated plants, but there is quite a number of cases where the host is an introduced plant, thus showing the ease with which these bugs change their host plants and the attraction which cultivated plants have for them.

Other trees commonly associated with cacao throughout the region which are of interest on account of their close affinities with cacao are:

Sterculiaceae: *Cola cordifolia*, *C. acuminata*, *Ptergygota macrocarpa*, *Sterculia rhinopetala*, *S. tragacantha*, *Triplochiton scleroxylon*, *Mansonia altissima*, *Tarrietia* sp. and *Cistanthera papyrifera*.

Tiliaceae: *Glyphaea* spp., *Desplatzia subericarpa*.

C. acuminata is the host to the capsid *Torma colae* China. The common trees *Entandophragma* and *Khaya grandifolia* though not related to cacao are of interest as the hosts of the capsid *Boxia khayae*. Certain weed and epiphytes may also be mentioned, thus *Brilliantasia* a common weed in cacao farms is often seen to be heavily infested with the capsid *Lygus neavei* when it is in fruit. It is at this stage it is often destroyed by brushing thus depriving the swarms of capsids of their foodplant. Another common weed *Piper guineensis* is the host of *Odoniella rubra* and so is the forest epiphyte *Culcasia* while another epiphyte, *Cercertis*, is host to *O. apicalis*.

Natural enemies.

The cacao capsids are preyed upon by many spiders and insects. Five different species of Salticidae or jumping spiders and three species of Mantids have been taken red-handed preying upon *Sahlbergella* and *Distantiella* but many other species occur in the same association and are almost certainly predaceous on the capsids. Their most formidable enemies, however, are the Reduviidae or assassin bugs, of which *Rhinocoris loratus* St., *R. obtusus* Beauv., *R. bicolor* F., *R. tristis* St. and *Vestulia lineaticeps* Sign. are among the commonest. Perhaps the most interesting is *Carcinomma astrologus* Beauv. which resembles *S. singularis* superficially. The well known *Dysdercus* mimic, *Phonoctonus* sp. has also been taken in capsid pockets. Altogether some 30 Reduviidae have been recorded from the cacao forests of the Gold Coast and it is more than likely that many of them attack capsids.

Golding records *Sphedanolestes cinctipes* Sign. preying on *Helopeltis* in Nigeria (23).

Mayné and Ghesquière (38) record the following predaceous enemies of *Sahlbergella* and *Helopeltis* in the Belgian Congo:

Gryllidae: *Homeogryllus tessellatus* Serv.

Mantidae: *Sphodromantis bioculata* L.

Reduviidae: *Carcinomma astrologus* Beauv., *Sphedanolestes picturellus* Schout., *Sastrapoda vicina* Schout., *Onccephalus subspinosus* Amyot et Serv., *Polytoxus walbergi* St.

Polytoxus is of peculiar interest as a mimic of *Helopeltis*. The following reduviids not already mentioned occur commonly in the cacao forest, though not observed attacking cacao capsids:

Harpactor nitidulus F., *Margasus afzelli* Stal, *Pisilus tipuliformis* F., *Cosmolestes aethiopicus* St., *Acanthaspis biliniolata* Beauv., *Petalochirus* sp., *Polidius spinosissimus* Stal, *Santosia maculata* F., *S. erythrocephala* Wolf, *Cerilochus inermiceps* Stal, *Prostemma falkensteini* Stein, *Reduviolus capsiformis* Germ., *Abela confussa* Har., *Sphedanovarus* sp., *Cethra musiva* Germ., *Vadimon modestus* Sign., *Thodelmus quinquespinosus* F., *Physorhynchus* sp.

Of these *Cethra musiva* superficially resembles *S. singularis*, and might perhaps be described as a mimic although it has not been in the capsid pockets.

The relationship between ants and cacao capsids merits special mention, not because it is of any great economic importance but because it has proved a "Will-o'-the-wisp" to so many workers and been the cause of so much wasted money and effort that it would be doing a service to expose the fallacy of trying to control insect pests with indigenous ants.

In the Guinean region there are at least a dozen species of ants closely associated with cacao which occur commonly and in numerous colonies. Two of the most widely distributed and most familiar are *Oecophylla longinoda* (Latr.) and *Macromischoides aculeatus* (Mayr), both acclaimed as redoubtable enemies of cacao capsids. The claim has just sufficient truth to make it dangerous. It is not uncommonly observed that trees infested with one or the other of these ants remain free from capsids while others around succumb. Yet adjacent and even contiguous trees are not protected. How, then, can one reasonably hope usefully to employ these already ubiquitous but highly capricious insects. Much has been written about the control of *Helopeltis* spp. in the cacao plantations of Java by means of the Black Ant *Doli-*

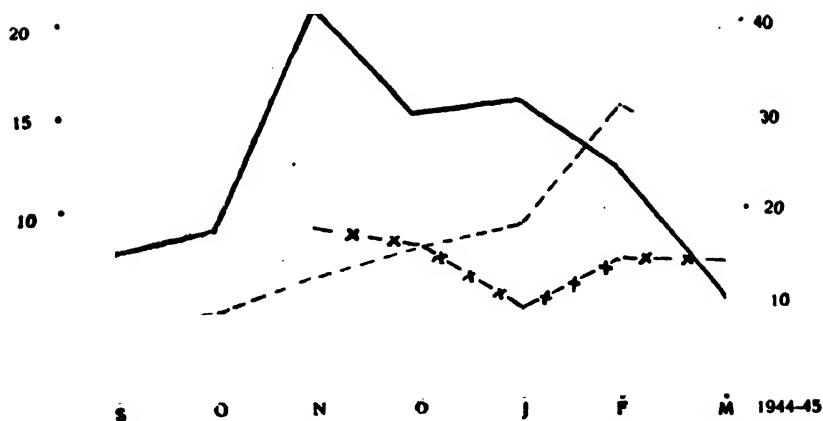
choderus bituberculatus. Attempts to raise the biotic potential of this species by artificial measures were begun prior to 1916 and a great deal of money has been spent on the scheme. The Black Ant has a formidable enemy in the fierce and war-like Gramang, *Plagiolepis longipes*. The old saying is still true: *Helopeltis* destroys the capital, the moth (*Acrocercops*) the interest of the cacao farmer.

The following parasites have been recorded: A mite, *Leptus* sp., as an ectoparasite and a Nematode, *Mermis* sp., as an endoparasite of *Helopeltis* in the Belgian Congo (38). The Encyrtid *Encyrtus cotterelli* Waterst. was bred from third instar nymphs of *D. theobroma* by Cotterell in the Gold Coast in 1922 (54). Since then there has been no further record. *Euphorus sahlbergellae* Wilk.: This parasite was first found by Cotterell in the Gold Coast in 1926 (55) together with its hyperparasite *Mesochorus melanothorax* Wilk. The parasite commonly attacks both *S. singularis* and *B. laticollis*. It has also been reared from *Boxia khayae* China. In range it appears to be co-extensive with *S. singularis*. It has actually been taken in the Gold Coast, Nigeria, and the Belgian Congo as far as 5 deg. south in the Mayumbe and 18 deg. east near Coquihatville. Its rate of parasitism seldom exceeds 30 per cent and nowhere does it appear to exercise any marked controlling influence on its hosts. According to Nixon (40) the *Euphorus* attacking *Helopeltis* in the Gold Coast is a different species, *E. anates* Nix.

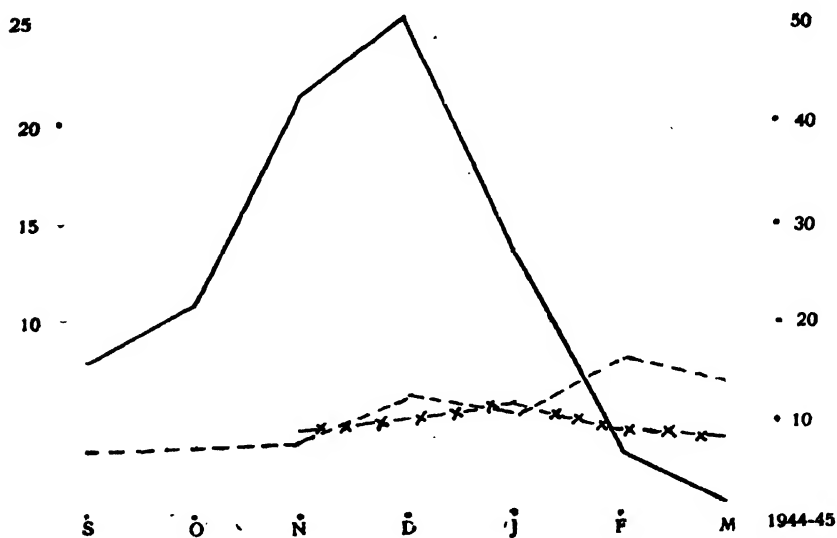
Observations at Tafo show that the parasite is more active on *S. singularis* than on *B. laticollis* and that in both cases the climax is reached just after the host peak. Graphs 6 and 7 illustrate the relationship between the two hosts and the parasite and hyperparasite during the months of the development of the main crop. The sharp drop in the *Bryocoropsis* at the end of the season is due to its dependence on pods. Since the whole complex is largely dependent on the fruiting phase of the cacao, the incidence of the hosts, parasite and hyperparasite varies from place to place and from year to year according to the time of ruiting.

Egg parasites.

Observations on the eggs of *S. singularis* and *D. theobroma* have failed to reveal any egg parasites. A species of *Trichogramma* has however been reared from eggs of *Helopeltis* on cacao pods.



Graph. 6. Relationship between *Sahlbergella* ———, *Euphorus* ----, and *Mesochorus* ×××××, at Tafo, Gold Coast. (Explanation: numbers, at left: population of host in thousands; at right: percentage of parasitism and hyperparasitism; letters: months).



Graph. 7. Relationship between *Bryocoropsis* ———, *Euphorus* ----, and *Mesochorus* ×××××, at Tafo, Gold Coast. (Explanation: numbers, at left: population on host in thousands; at right: percentage of parasitism and hyperparasitism; letters: months).

Possible control measures.

(a) **Biological.** — It will have been seen from the description of the general ecology of the region that there is a high degree of uniformity. This is true not only of the broad character of the forest but also of the actual species composing it. There are of course many notable exceptions such as the tree *Triplochiton scleroxylon* K. Schum., which is limited to the central part of the region, but the commonest species such as *Ceiba*, *Bombax*, *Cola*, *Pterygota*, *Entandophragma*, *Chlorophora*, *Ricinodendron*, *Piptadenia*, *Canarium* and *Terminalia* to mention but a few, occur throughout the region from Sierra Leone to the Central Congo. This homogeneity is reflected in the insect fauna. The present writer has devoted some time to indexing the recorded insects of economic importance in West Central Africa and is greatly impressed with the wide range of most of the species. Many of the apparent lacunae are simply due to insufficient knowledge of the local fauna. It follows that the chances of finding parasites of cacao capsids or of related genera peculiar to any part of the range are remote. The idea that there lurk in the remote recesses of the primeval forests indigenous parasites which have not yet followed their capsid hosts to the cacao islands established at scattered points throughout the Guinean region will not bear scrutiny, because the forest in and around the cacao islands is stiff with the wild hosts of the capsids and is essentially the same as the forest remote from cacao. Besides what could be more deeply buried in the ancient heart of Africa than the cacao plantations at Barumbu, Lukolela, or Bikoro? There was no need for migration: the cacao was planted on the threshold of the forest home of the capsids.

It will be necessary, therefore, to search outside the Guinean region, and for ecological reasons, outside Africa for natural enemies of related genera. In this connection it may be worthwhile reviewing the position of the family with regard to parasites. There are according to Thompson (51) in Africa, North America, Europe and the Dutch East Indies some 20 species of capsids with recorded parasites. The latter are mostly Hymenoptera of the families Braconidae, Mymaridae, Trichogrammatidae, and Ichneumonidae; but Diptera of the families Tachinidae and Sarcophagidae have been recorded. There is little doubt that there are many unrecorded parasites of capsids especially in the tropics, and perhaps the most promising region to

investigate to start with would be the Wegnerian counterpart of West Africa, the north coast of South America and the east coast of Brazil especially the cacao producing province of Bahia. It might also be useful to explore the middle Amazon, the Madeira, and the Rio Negro where cacao has been cultivated for centuries in close association with the natural forests. According to Bondar (4) there are nine species of *Monalonion* in Brazil, Colombia, and Ecuador; but doubtless there are many other related genera worth investigating. It is naturally assumed that prior to such exploration a study of the capsids of the region would be made at the British Museum and other suitable Institutes.

(b) Chemical. — On the cacao estates of the French colonies and the Belgian Congo chemical control of *Sahlbergella* and *Distantiella* is highly feasible on account of the lay-out, the presence of roads, the high degree of mechanization already achieved, and the existing organization. With the advent of adequate supplies of reasonable priced insecticides with residual action such as DDT and Gammexane there is no doubt but that the estates will be able to cope very effectively with the capsids especially as the trouble is largely confined to pockets which together form only a small part of the whole plantation. The cost would be little if any more than the present practice of hand picking. The application of an oil-soluble insecticide like DDT constitutes no danger to the plant in this case since it need be applied only to the older, woody parts of the trees where the capsids are bound to come into contact with it owing to their habit of secreting themselves in the forks of the branches and in old cankers. Much of their feeding, too, is done on older branches and they display a tendency to roam about the trees especially in the later nymphal and adult stages. Unfortunately this is far from the case with peasant cultivations of the Gold Coast and Nigeria where the close, irregular planting, the remoteness of the farms, the absence of roads, the small size of the holdings and the lack of organization and capital present insuperable difficulties. It is well to emphasise this point in order to prevent the waste of time and money in perfecting spraying methods which can never be applied on a large scale in British West Africa.

Acknowledgements.

The writer wishes to thank the following for advice and co-operation: Mr. C. F. Charter, Dr. D. Goodall, Dr. A. MacLean, and Mr. H. Owen

of the West African Cacao Research Institute; the Forestry and Agricultural Departments of the Gold Coast, Nigeria and Sierra Leone, the Belgian and French colonial governments and the owners of cacao plantations in French Togoland and the Belgian Congo.

References

1. Andrews, E. A., Factors affecting the control of the tea mosquito bug (*Helopeltis theivora* Waterh.). — Indian Tea Asson., London, 1923. Rev. Appl. Ent. 11, 1923.
2. Aubreville, A., La flore forestière de la Côte d'Ivoire.
3. Auchinlek, G. G. & Knowles, C. H., Yields of cacao on experimental stations. — G. C. Dept. of Agric. Bull. 1926.
4. Bondar, G., Insectos daninhos e parasitas do cacau na Bahia. — Bol. Tec. Inst. Cacau Bahia, 1939.
5. Box, H. E., Report on a visit to French Togo, Dahomey, Nigeria and the Cameroons. — West Afric. Cacao Research Inst. May 1944.
6. — Memorandum No. 12 C.C.R. Station, 1942.
7. Bredo, H. J., Contribution à l'étude de *Sahlbergella singularis*. — Bull. Agric. Congo Belge 22, No. 1, March 1931.
8. Charter, C., Annual Report for 1945. Soil Science WACRI.
9. China, W. E., New and little known West African Miridae. — Bull. Ent. Res., 35, 2, 1944.
10. — A new species of *Bryocoropsis* on cacao in Fernando Po. — Bull. Ent. Res. 20, 1929.
11. Cheesman, E. E., The economic botany of cacao. — Suppl. to "Tropical Agriculture", June 1932.
12. Cotterell, G. S., Bull. Ent. Res. 35, 2, 1944.
13. — Report on the occurrence of *Sahlbergella* spp. and other insect pests of cacao in Fernando Po, San Tomé and the Belgian Congo. — G. C. Dept. Agric. Bull. 22, 1930. Central Cacao Research Station Report 1938-42, Accra 1943.
14. — Preliminary study of the life history and habits of *Sahlbergella singularis* and *Distantiella theobroma*. — G. C. Dept. Agric. Bull. 7, 1926.
15. Crowdy, S. H., Unpublished paper, 1946.
16. Distant, W. L., Entomologist, 1909, p. 252.
17. Duchesne, F., Les essences forestières du Congo Belge. Bruxelles, 1931.
18. Dudgeon, G. C., Notes on two West African Hemiptera injurious to cacao. — Bull. Ent. Res. 1, pp. 59-61, 1910.
19. Exell, A. W., Vascular plants of San Thomé. — Brit. Museum, 1944.
20. von Faber, F. C., Die Krankheiten und Parasiten des Kakao-baumes. — Berlin, 1909.
21. Ghesquière, J., Un Reduvidé prédateur du *Sahlbergella singularis*. — Rev. Zool. Afr. 10, 3, p. 329, 1922.
22. — Monographie sur les *Helopeltis*. — Rev. Zool. Afr. 10, 3, 1922.
23. Golding, F. D., Capsid pests of cacao in Nigeria. — Bull. Ent. Res. 32, pp. 83-89, 1941.
24. Graham, Jour. Econ. Biol. 3, p. 113, 1908. (Not seen).
25. Hacquart, A., Project de culture mixte cacaoyer-hevea. Appendix to "Note sur la culture du cacaoyer et son avenir au Congo Belge" by Ringoet, A. and Claessens, J., I.N.E.A.C., 1944.

26. Haglund, E., Of. Svensk. Vet. Ak. Forh. 1895 (not seen).
27. van Hall, C. J. J., Cacao. London 1932.
28. I.N.E.A.C., Ann. Report, 1940.
29. Irvine, F. R., Plants of the Gold Coast. — Oxford Univ. Press, 1930.
30. Kirkaldy, Wien. Ent. Zeitg. 22, 13, 1903 (not seen).
31. Kuhlitz, T., Ueber die Capside Dematostages contumax gen. et sp. nov., die westafrikanische Kakao-Rindenwanze. — Zool. Anz. 30, 28-35, 1906.
32. Kullenberg, Eggs of Swedish Capsids. — Ark. Zool. 34A, 1943. (Not seen).
33. Lamborn, W. A., Agric. pests of the southern provinces of Nigeria. — Bull. Ent. Res. 5, p. 205, 1914.
34. Leach, R. & Smeeth, C., Gnarled stem canker of tea caused by the capsid bug (*Helopeltis bergrothi* Reut.). — Ann. Appl. Biol. Nov. 1933.
35. Lean, O. B., Observations on the life history of *Helopeltis* on cotton in southern Nigeria. — Bull. Ent. Res. 16, 1926.
36. Mallamaire, A., Bull. Co. A.O.F. 17, 3, pp. 434-485, 1934. (Not seen).
37. Mayné, R., Insectes et autres animaux attaquant le cacaoyer au Congo Belge. — London, 1917.
38. Mayné, R. & Ghesquière, J., Hémiptères nuisibles aux végétaux du Congo Belge. — Ann. de Gembloux, Jan. 1934.
39. Mayné, R. & Vermoessen, Le *Sahlbergella singularis* et le chancre de cacaoyer. — Bul. Agric. Congo Belge, 5, 2, June 1914.
40. Nixon, G. E. J., Euphorine parasites of capsid and lygaeid bugs in Uganda. — Bull. Ent. Res. 37, 1, 113-129, May 1946.
41. Patterson, W. H., Rep. Ent. Dept. Agric. G. C., 1917.
42. Posnette, A. F., Report on a visit to the Ivory Coast. Oct. 1946.
43. Reuter, O. M., Ueber die westafrikanische Rindenwanze. — Zool. Anz. 31, pp. 102-105, 1907.
44. Acta Soc. Sc. Fennicae 37, 3, 1910, Helsingfors.
45. Schouteden, H., *Sahlbergella* nouveaux du Congo Belge. — Rev. Zool. Bot. Afric. 26.4.1935.
46. — Le genre *Lycidocoris* Reut. et Popp. — Rev. Zool. Bot. Afric. 21.1.1942.
47. Skidmore, C. L., Indications of existing correlation between the rainfall and the number of pods harvested at Aburi and Asuansi. — G. C. Dept. Agric. Bull. 16, 1929.
48. Schumacher, Sitz. Ges. Naturf. Fr. Berlin, 1917.
49. Smith, K. M., Investigation of the nature and cause of the damage to plant tissues resulting from the feeding of capsid bugs. — Ann. App. Biol. 7.1.1920.
50. Strunk, L., Tropenfl. 10, pp. 726-730.
51. Thompson, W. R., Parasite Catalogue. Belleville, Canada, 1944.
52. Warburg, O., Tropenpfl. 6, pp. 638-640; 7, p. 7, p. 309; 8, p. 630.
53. W.A.C.R.I., Report for 1944. Gold Coast.
54. Waterston, J., Two new Chalcid parasites. — Bull. Ent. Res. London, 13, 2, pp. 183-188, 1922.
55. Wilkinson, D. S., On two new parasites from West Africa bred from the bark sapper (*Sahlbergella*). — Bull. Ent. Res. London, 17, 3, pp. 309-311, 1926.
56. Winkler, H., Tropenpfl., 10, pp. 570-571, 1906.
57. Zwingenberger, C., Tropenpfl., 7, pp. 176-178, 1903.

PEQUENAS COMUNICAÇÕES.

Science and UNESCO: International Scientific Cooperation.

UNESCO's First General Conference was opened in Paris, Nov. 19, 1946, and ended Dec. 10, 1946. About 800 delegates from 29 nations attended the meeting at the new headquarters (Avenue Kléber). Of most interest is the report presented by J. Needham, Sec. of the Division of Natural Sciences, on "Science and UNESCO: International Scientific Cooperation", from which we quote the following topics (see "Biologia", April 1947, p. 14):

For four thousand years great spiritual leaders have taught the essential brotherhood of man, and man's responsibility towards his fellow men. We are now living in a world so closely knit by scientific means of communication and transport that what happens to a humble man in some obscure village may in the end affect all of us. Human misery, no less than world peace, is indivisible. It is the recognition of the fundamental unity of mankind that impels us to plan the building of the new world of peace and social well-being. Science and Technology alone cannot do this, but they are absolutely indispensable. With them we can bring about a manifold increase in the productivity of the soil; we can use as raw materials the commonest clay and sand, the universal wind and sea; we can efficiently prevent or cure man's mental and physical diseases; we can organize countless mechanical slaves to form the basis of a freer and better life than even Plato could conceive of. Scientific knowledge and its applications including psychology, can help to banish fear from man's consciousness, and to make unnecessary man's exploitation of man. By liberating him from exhausting drudgery, Science enables him to seek the complete fulfilment of his personality, and retain his most precious gift: his dignity as a human being. — Many people, condemning a new proposal, say: "It is too idealistic", meaning vaguely that it is impractical. The work which the Section of Natural Sciences is undertaking is thoroughly practical, though none the less idealistic for that. It represents the work of many minds brought together by their enthusiasm for international co-operation in science, and for the application of science to social welfare. It represents a distillate of suggestions and proposals from governments and their delegates, eminent scientists, and many others. Our present plans do not cover the whole of the activities and functions which the Section of Natural Sciences will be capable of undertaking; it merely expounds a practical working programme which can be put into operation immediately with reasonable expectations of concrete results. — UNESCO must be a dynamic not a static organism, characterised, like all living things, by that autonomy necessary for its free functioning. It must not be conceived of as a central cerebrum isolated from the great world, but as a circulatory and nervous system with arterioles and nerve-endings among the people in the fields and at the benches, among the scientists in their laboratories and among the students in schools and universities. The more efficient the system becomes the more activity on a reflex basis will be possible, the organism responding sensitively to the ever-varying conditions at the periphery. While the programme of the Natural Sciences Section is quite definite, methods of action must retain a certain fluidity. — The practical realization of our programme depends, in no small measure, on the support, both moral and financial, the co-operation, enthusiasm and goodwill, of all sorts of people, statesmen and leaders, scholars and students, educated laymen, farmers, mechanics, and workmen, everybody all over the world. The scientific worker, whether

humble or eminent, can be counted on to play his part in making UNESCO's programme a success. J. Needham.

"Biologia".

Since January 1947, Franz Verdoorn, the well known Editor of *Chronica Botanica*, is publishing a new Monthly Newsletter Supplement *Biologia*, Official Bulletin of the principal international biological Societies, Commissions and Congresses. It contains: 1) announcements and reports about international activities and congresses, meetings, the work of commissions, etc.; 2) important personalia (of some international interest); 3) notes about new books of a broad general and methodological interest; 4) all kinds of news, information about new developments and projects, acquisitions, etc. about biological institutions, museums, gardens and societies, also notices and requests. There are already some zoologists (J. S. Huxley, C. J. v. d. Klaauw and J. Needham) on the Editorial Board of *Chronica Botanica*. The Editor plans to invite a few more zoological colleagues in order that he will be able to report well in the future about the principal events in the world of zoology (incl. entomology and animal industry, excl. medical sciences). He asks to drop him a postcard whenever one reads or hears of something which should be published in the next "Biologia".

Subscriptions to "Biologia" are accepted at \$4.00 for 2 years (one volume, with index), post free, payable in advance. Subscriptions for one year or single numbers are not available. All communications to be addressed to the *Chronica Botanica* Co., Waltham 54, Mass., U.S.A.

T. Borgmeier.

Homenagem ao Sr. Romualdo Ferreira d'Almeida.

No dia 12 de Fevereiro de 1947, realizou-se em São Paulo, no auditório do Departamento de Assistência ao Cooperativismo, a sessão solene da Sociedade Brasileira de Entomologia, em homenagem ao conhecido lepidopterólogo brasileiro Romualdo Ferreira d'Almeida, para comemoração do 30.º aniversário de suas atividades científicas. A reunião foi presidida pelo Prof. Lauro Travassos, do Instituto Osvaldo Cruz (Rio de Janeiro), participando da mesa os Srs. Prof. Zeferino Vaz, Diretor da Faculdade de Medicina Veterinária (S. Paulo); Eduardo Navajas, do Instituto Biológico (S. Paulo); Frederico Lane e Lindolfo Rocha Guimarães, Presidente e Secretário da Sociedade Brasileira de Entomologia. Depois da entrega do "Livro Jubilar" e do título de sócio honorário ao Sr. Ferreira d'Almeida, fizeram uso da palavra o Prof. Zeferino Vaz para saudar a esposa do naturalista patricio; e o Sr. Eduardo Navajas para saudar o homenageado. O Sr. Romualdo Ferreira d'Almeida agradeceu, por fim, as homenagens da Sociedade Brasileira de Entomologia, discorrendo sobre a situação dos cientistas nacionais e as possibilidades que agora encontram para o desenvolvimento dos seus estudos, ao contrário das dificuldades opostas no passado, quando no início de suas atividades. — (Diário de S. Paulo, 13 de Fevereiro de 1947.)

Sociedade Brasileira de Entomologia.

Na Assembléia Geral Ordinária da Sociedade Brasileira de Entomologia, realizada em São Paulo no dia 30 de Julho p. p., foi eleita a seguinte diretoria para o biênio 1947-49: Eduardo Navajas, Presidente; John Lane, Vice-Presidente; L. R. Araujo; 1º Secretário; Messias

Carrera, 2º Secretário; Miguel Carvalho Leite, Tesoureiro; Carlos R. Fischer, Bibliotecário; E. Xavier Rabello, Conservador; Flávio da Fonseca, A. Hempel e J. Guérin, Conselheiros.

Notícias Diversas.

The 8th *International Congress of Entomology* is planned to meet at Stockholm, August 1948 under the presidency of Y. Sjöstedt. V. Butovitsch will be general secretary. The exact date, which will be announced later, will be arranged so that the date will not conflict with that of the Zoological and Genetical Congresses which will be held at about the same time. The executive committee (Sec.: H. E. K. Jordan, Zool. Museum, Tring, Herts.) will be reorganized at the next congress. Of the Berlin Congress (1938) five vols. of "Proceedings" have been issued of which only two have reached the British and American members. (*Biologia*, Fev. 1947.)

The 13th *International Congress of Zoology* will be held in Paris during 1948. E. Fischer-Piette, the gen. sec., Lah. de Malacologie, 55, Rue de Buffon, Paris V, urgently asks the directors of all zoological institutions to send him a complete list of the members of their staff in order that he will be able to inform all colleagues well about the congress. (*Biologia*, Fev. 1947.)

A report on recent work by the *International Commission on Zoological Nomenclature* by F. Hemming will be found in *Ent. News* 55:211-212, 1944. This organization is engaged in the publication of the decisions taken before the outbreak of the current war. These decisions have been embodied in Opinions 143-183 and Declarations 10-12. Of these Opinions 134-155 and the 3 Declarations have been published. For a report on "the General Council of Zoological Nomenclature", vide Osgood in *Ann. Ent. Soc. Amer.* 36:333-334, 1943. (*Biologia*, Jan. 1947, p. 1.)

Two interesting reports on the *Inter-American Coöperative Aspects of Pest Control*, presented to the Second Inter.-Am. Conference of Agriculture, have lately been published by its Permanent Committee. In one of these P. N. Annand deals with the problems from the point of view of the quarantine officer (*Inter-American Coöperation in the Control of Agricultural Pests*, p. 22, 1944). C. P. Clausen in a most inspiring address (p. 19, 1944) spoke about the "Biological Control of Insects, and Facilities for Inter-American Coöperation in the Exchange of Beneficial Insects". In this he proposes the establishment of a Biological Control Unit in the Inter-Am. Institute of Agriculture. (*Biologia*, Jan. 1947, p. 3.)

During the War, the *Anti-Locust Research Centre* (British Museum, N. H., London, S.W. 7) concentrated on forecasting and advisory services for anti-locust campaigns in Africa and the Middle East. Recently a grant for developing research activities has been made under the Colon. Res. and Devt. Act, and D. L. Gunn has been appointed to take charge of this work. It is hoped that the cooperation of university departments can be enlisted, as funds are available to provide some grants to research students, particularly in connection with aircraft methods of locust control. (*Biologia*, Abril 1947.)

Of considerable interest is the close co-operation between workers and institutions in science and arts in the newly established *International Council of Museums*, which met in Paris, Nov. 1946, and laid down its permanent organization. A Committee for International Cooperation amongst Museums, with a worldwide membership of national subcommittees is being organized. F. M. Olhrechts, Univ. of Ghent, is corresponding secretary,

and C. J. Hamlin, Buffalo Museum of Sci., chairman. (Biologia, Março 1947.)

The Natural Sciences Division of UNESCO (J. Needham, Sec.) at its Paris meeting (Nov.-Dec. 1946) resolved in special resolutions that the scheme for the establishment of an *International Institute of the Hylean Amazon at Belem* (Brazil) should be supported and that the secretariat be authorized to set up an International Scientific Commission in consultation with Brazil, Colombia, Bolivia, Ecuador, Peru, Venezuela, France, Great Britain, Netherlands, and the U.S.A., to investigate the question on the spot as soon as possible in all aspects, including both immediate, and long-term plans, financial matters and the framing of a draft agreement between the cooperating governments and UNESCO. (Biologia, Fev. 1947.)

Sobre o *Instituto Entomológico de Berlin-Dahlem* escreve o Prof. Sachtleben (carta de 6.8.1946, dirigida ao Dr. P. Wygodzinsky): "Wie Sie aus obenstehender Adresse ersehen, ist das Institut zur Zeit nicht in Berlin-Dahlem. Im August 1943 habe ich alle Sammlungen, die Bibliothek und alle sonstigen wertvollen Instituts-einrichtungen zur Vermeidung von Fliegenschäden auf ein Schloss in Mecklenburg gebracht. Das Institut hat hier die Kriegszeit wohlbehalten überstanden; Sammlungen und Bibliothek sind noch in bester Ordnung. Auch das Institutsgebäude in Berlin-Dahlem ist erhalten geblieben; es wird jedoch zur Zeit von der amerikanischen Besatzungsbehörde in Anspruch genommen, sodass vorläufig eine Rückverlegung des Instituts nach Berlin-Dahlem noch nicht möglich ist, auch schon deshalb nicht, weil die hiesige Bahnstrecke noch unterbrochen ist und daher keine Gelegenheit gegeben wäre, den umfangreichen Rücktransport des Instituts durchzuführen. Ferner ist zu berichten, dass das Zoologische Museum Berlin zwar noch in den letzten Kriegsmonaten einige Bombentreffer erhalten hat, durch die besonders einige Teile der Lepidopteren-sammlung vernichtet wurden, sonst aber im grossen Ganzen erhalten geblieben und auch schon wieder in Betrieb ist (auch die Schausammlung ist schon wieder eröffnet). Sonst sind allerdings ausser zahlreichen Privatsammlungen auch eine grosse Anzahl von Instituten und Museen zerstört worden (z. B. Hamburg, Bremen, Lubeck, Dresden, Stuttgart, München), doch liegen bei den Museen die Verhältnisse insofern günstiger, als die Sammlungen meist auf das Land verlagert waren und zum grössten Teil erhalten blieben, während meist nur die Museumsgebäude vernichtet wurden, so z. B. in Bremen, Frankfurt a. M., Dresden, Stuttgart, München." O endereço atual é: (3) Bluecherhof, Post Vollrathruhe, Mecklenburg, Sowjetische Zone.

Das Zoologische Museum der Universität Bonn ist restlos ausgebombt, wie die ganze hintere Hälfte des Poppelsorfer Schlosses, und vom Museum ist nichts übrig geblieben. Leider ist auch die Winnertz'sche Sammlung (Simuliidae, Dipt.) den Weg aller irdischen gegangen. Die Reichen-sperger'sche Myrmecophilensammlung war im Museum Koenig untergebracht und ist erhalten, während seine Privatbibliothek zum grössten Teil verschwunden ist, wie ebenso der grössere Teil der Institutsbibliothek.

O Museu de História Natural de Viena quase não sofreu danos durante a guerra; mas o herbário foi em parte destruído (cf. Science, 24 de Agosto, 1945). A Biblioteca está completa.

Desde 1.º de Julho de 1945, Prof. Dr. Jos. Bequaert é "Curator of Insects" no Museum of Comparative Zoology, Cambridge, Mass., cargo anteriormente ocupado por Nathan Banks. Escreve o Dr. Bequaert em carta ao Editor: "My plan is to rearrange the collections on a purely taxonomic basis; thus far the several orders have been divided up into geographical areas, somewhat arbitrarily (for instance, the North African material is placed under Africa, regardless of its Palearctic affinities).

Thus the members of one family are scattered in half a dozen corners. It will be difficult and time-consuming to change this system now, particularly in view of the complete lack of help and the scarcity of equipment. I have, however, made a start with the Tabanidae and shall proceed with the other groups I am best acquainted with."

D. Hardwick, Science Officer (The British Council, Rua Pedro Lessa 35, C. Postal 2237, Rio de Janeiro) escreve-nos em carta de 27 de Jan. de 1947: "Dear Sir. Glancing through the December issue of your excellent "Revista de Entomologia" has tempted me to write to you asking for assistance in the efforts the British Council in Brazil is making to stimulate exchanges of Natural History specimens with the Natural History Museum in London. The entomological department of this Museum is anxious to acquire specimens in the following families: a) Sawflies; b) Trichoptera; c) Dragonflies; d) Parasitic Hymenoptera; e) Longhorned Grasshoppers; f) The larger Diptera. I wonder if you can suggest any institution or individuals who would be likely to supply specimens of this kind. The assistance of this office would gladly be given to overcome any transport problems, and the Natural History Museum in London would present in exchange copies of any of its publications which the senders might wish to have."

Prof. Merle W. Wing (Dept. of Zoology, North Carolina State College, Raleigh, North Carolina, U.S.A.) is organizing a list of names and addresses in order to further intellectual intercourse between myrmecologists the world over. The success or failure of this ideal will depend largely on the kind of cooperation which he receives from other myrmecologists to whom a preliminary list is sent. Workers residing outside of the U.S.A. may be able to supply accurate information on the active workers of their country in the field of myrmecology. This information is difficult to obtain without the assistance of colleagues in other countries.

Desde 1946 aparece na Austria uma nova Revista, intitulada "Zentralblatt fuer das Gesamtgebiet der Entomologie". E' seu editor o Prof. Dr. Karl E. Schedl, conhecido especialista em Ipídeos e Platypodídeos. Endereço: Lienz, Ost-Tirol, Rufenfeldweg 4.

A coleção de insetos mexicanos deixada por Carlos C. Hoffman foi doada ao American Museum of Natural History de New York por F. M. Johnson.

A. S. Romer foi nomeado Diretor do "Museum of Comparative Zoology", Cambridge, Mass., em substituição a Thomas Barbour.

O "Imperial Institute of Entomology" (London) tem um novo Diretor na pessoa do Dr. W. J. Hall, que vem substituindo o Dr. S. A. Neave. E' "Assistant Director" o Dr. T. H. C. Taylor.

Frank Henry Taylor, notável autoridade em mosquitos e outros dípteros hematófagos da Austrália e Nova Guinéa, morreu em 20 de Dez. de 1945 em Sydney. Era natural de Lekemba, N.S.W., onde nasceu em 12 de Julho de 1886.

M. Hebard, antigamente "Curator of Insects", Academy of Natural Sciences, Philadelphia, Pa., morreu em 28 de Dezembro de 1946, na idade de 59 anos.

Robert Newstead, conhecido por seus trabalhos sobre entomologia médica e econômica, faleceu em 17 de Fevereiro de 1947, na idade de 87 anos. Era Professor emérito da Universidade de Liverpool.

C. Menozzi (Gênova) e W. Karawajew (Kiew), dois conhecidos mirmeccólogos, morreram durante a guerra, segundo carta recebida da Europa.

O Prof. Dr. Salvador Mazza, conhecido entomologista e parasitologista argentino, faleceu em 7 de Novembro de 1946 na cidade de Monterrey (México).

BIBLIOGRAFIA.

Pelo Dr. P. Wygodzinsky, Rio de Janeiro.

Coleoptera.

Allenspach, V., Ueber die Praeparation von Kleinkäfern. — Mitt. Schweiz. Ent. Ges., Bern, 1945, 19 (9): 343-347, 1 fg.

Sobre a preparação dos microcoleópteros para a coleção.

Arrow, G. J., The beetles of the Lamellicorn subfamily Valginae, with a synopsis of the genera and descriptions of some new species. — Trans. R. Ent. Soc. London (1944) 1945, 94: 225-246.

Balfour-Browne, J., The genera of the Gyrinoidea and their genotypes. — Ann. Mag. Nat. Hist., London, 1945, (11) 21: 103-111.

Baenninger, M., Monographie der Subtribus Scaritina (Col. Carab.) III. (concl.). — Dtsch. Ent. Z., Berlin, 1939: 126-161.

Contém a descrição de *Scarites (Taeniolobus) schubarti* n. sp., de Pernambuco.

Baenninger, M., Bestimmungstabelle der sudamerikanischen Formen des Subg. *Taeniolobus* Chd. (Col. Carab.). — Ent. Bl., Krefeld, 1941, 37: 65-78.

Dá uma chave para as espécies sul-americanas de *Scarites (Taeniolobus)*, fam. *Carabidae*, e descreve numerosas novas espécies do Brasil, Equador e Peru.

Bechyne, J., Generis *Deuterocampa* Chev. specierum revisio (Col. Phytoph. Chrysomelidae). — Sborn. ent. Odd. zemsk. Mus. Praze, 1944, 21/22: 57-65.

Contém a descrição de novas espécies e aberrações, todas do Brasil.

Benesh, B., A systematic revision of the holarctic genus *Platycerus* Geoffroy (Coleoptera: Lucanidae). — Trans. Am. Ent. Soc., Philadelphia, 1946, 72 (3): 139-202, pls. 4-9.

Temos prazer em registar este trabalho, mesmo sem ser relacionado diretamente à fauna neotrópica. É um exemplo de um tratamento taxonômico moderno da ordem Coleoptera, principalmente quanto às figuras boas das partes mais importantes.

Bierig, A., Nuevos Clavigeridae (Col.) de Costa Rica y Cuba. — Fac. Agron. Univ. Costa Rica, San José, 1945, 15 pgs., 16 fgs.

Traz descrições nos gêneros *Decarthron*, *Fustiger* e *Pseudofustiger*.

Blake, D. H., New species of the genus *Hadropoda* Suffrian from the West Indies. — Bull. Mus. comp. Zool. Harvard, Cambridge, Mass. 1943, 92: 411-441, 4 pls.

Blake, D. H., Five new flea beetles from the West Indies. — J. Wash. Acad. Sci., Menasha, 1945, 35: 89-92, 5 fgs.

Traz diagnoses de novas espécies de *Hadropoda*, *Oedionychis* e *Pseudoepitrix*.

Blake, D. H., Six new species of a Eumolpid genus new to the West Indies. — J. Wash. Acad. Sci., 1945, 35: 323-327, 6 fgs.

Trata de novas espécies de *Alethaxius*.

Blake, D. H., The species of *Myochrous* from the West Indies (Coleoptera). — Proc. Ent. Soc. Washington 1947, 49 (1): 22-28, 5 fgs.

Descreve 5 espécies novas.

Bourgin, P., Revision des genres *Coelosis* Hope et voisins (Col. Dynastidae). — Rev. Franç. Ent., Paris, 1945, 11: 118-146, 10 fgs.

Descrição de numerosas novas espécies em *Coelosis*, *Jannelosis* n. g. e *Millotsis* n. g.

Corporeaal, J. B., Notes on some Cleridae in the Hamburg Zoological Museum. — Tijdschr. Ent., Amsterdam, 1941, 84: 359-361.

Descreve *Enoclerus x-album* ab. n. *illiteratus* (Guatemala) e *Lebsiella minuta* n. sp. (México).

Deelder, C. L., Revision of the Erotylidae (Coleoptera) of the Leyden Museum. — Zool. Meded., Leiden, 1942, 24:49-115, 5 fgs.

Novas espécies sul-americanas dos gêneros *Aegithus*, *Brachysphaenus*, *Callischyrus*, *Erotylus*, *Homoeotelus*, *Microerotylus* e *Mimodacne*.

Deschamps, P., Sur la digestion du bois par les larves de Cérambycides (note préliminaire). — Bull. Soc. ent. Fr., Paris, (1944) 1945, 49:104-110, 2 fgs.

Dillon, L. S. & E. S., The tribe Onciderini (Coleoptera, Cerambycidae). Part I. — Sci. Publ. Reading Publ. Mus., Reading, Pa., 1945, no. 5, XV+186 pgs.

Os autores descrevem um grande número de novos gêneros e espécies.

Dillon, L. S. & E. S., Revision of the tribe Pachypezini (Coleoptera, Cerambycidae). — Bull. Brooklyn Ent. Soc., Lancaster, Pa., 1945, 40:11-27, 1 pl.

Este trabalho contém uma revisão do gênero *Pachypeza*, com descrição de duas novas espécies.

Ermisch, K., Die Gattung *Calyce* Champ. (Mordell.) nebst Beschreibung vier neuer Arten. — Ent. Bl., Krefeld, 1943, 39:53-60, 5 fgs.

C. horioni (Brasil) e *C. langeri* (Colômbia) são descritas como novas.

Fiedler, C., Die Gattung *Eubulus* Kirsch (Col. Curcul. Cryptorhynch.). — Dtsch. Ent. Z., Berlin, 1939:37-125.

Uma revisão do gênero, com numerosíssimas novas espécies.

Fiedler, C., Ueber alte und neue suedamerikanische Arten der Gattung *Cryptorhynchus* Illig. (Col. Curc. Cryptorhynchini). — Z. Naturw. Halle, 1941, 95:69-122.

Traz uma chave das espécies sul-americanas, as quais em grande parte são novas.

Fisher, W. S., New Cerambycid beetles belonging to the tribe Disteniini from Central and South America. — Proc. U. S. Nat. Mus., Washington, 1946, 96 (3201): 329-333.

Traz 4 espécies novas dos gêneros *Distenia* e *Cometes*, de Costa Rica, Bolívia e Colômbia.

Fleutiaux, E., Revision des *Physodactylus* Fischer (Col. Elateridae). — Rev. Franç. Ent., Paris, (1940) 1941, 7:164-168.

O autor descreve várias novas espécies e variedades de *Physodactylus* do Brasil, dando também a diganose de *Brevicerus oberthueri* n. sp.

Guenther, K., Ergänzungen und Berichtigungen zu Coleopterorum Catalogus, pars 149: Rhynchophorinae (Curcul.), mit einigen Neubeschreibungen. — Dtsch. Ent. Z., Berlin, 1941: 24-53, 15 fgs.

Traz diagnoses de espécies novas dos gêneros *Cactophagus*, *Phyllerythrus* e *Rhodobaenus*.

Guérin, J., Notas informativas e descrição de novas espécies de *Erotylidae*. — Rev. Brasil. Biol., 1946, 6 (3): 365-372, 4 fgs.

Traz as descrições de *Erotylus egregius*, *elongatulus*, *ochraceus* e *pseudomelanosticus* n. spp., todos do Brasil.

Guérin, J., Descrição de uma nova espécie de *Clytridae* do Brasil. — Rev. Brasil. Biol., 1946, 6 (3): 391-393, 1 fig.

Saxinis paranaensis n. sp.

Heikertinger, F. & Csiki, E., Chrysomelidae: Halticinae II. — Coleopterorum Catalogus, s'Gravenhage, 1940, 169:337-635.

Hinton, H. E., A monograph of the beetles associated with stored products. Volume I. — London, Brit. Mus., Nat. Hist., 1945, VIII+443 pgs., 505 fgs.

Hinton, H. E., A synopsis of the Brazilian species of *Cylloepus* Er. (Coleoptera, Elmidae). — Ann. Mag. Nat. Hist., London, 1945, (11) 12:43-67, 16 fgs.

Descrição de numerosas novas espécies, todas do Brasil.

Hinton, H. E., Descriptions of two new species of *Elsianus* Sharp, with a key to the *graniger* species-group (Col. Elmidae). — Ent. Month. Mag., London, 1945, 81:90-92, 5 fgs.

O autor dá uma chave para a classificação das espécies do grupo *graniger*, e descreve duas novas espécies do Brasil e do Peru.

Hinton, H. E., The Histeridae associated with stored products. — Bull. Ent. Res., London, 1945, 35:309-340, 56 fgs.

Hinton, H. E., The species of *Anthrenus* that have been found in Britain, with a description of a recently introduced species (Coleoptera, Dermestidae). — Entomologist, London, 1945, 78:6-9, 6 fgs.

Hinton, H. E., New and little known species of *Microcylloepus* (Coleoptera, Elmidae). — Entomologist, London, 1945, 78:57-61, 1 fg.

As novas espécies provêm da Amazônia e da Guiana francesa.

Hinton, H. E., A key to the North American species of *Terapus*, with a description of a new species (Col., Histeridae). — Proc. R. Ent. Soc., London, 1945, (B) 14:38-45, 16 fgs.

T. manni n. sp. (México).

Hinton, H. E., *Stethelmis chilensis*, new genus and species of Elmidae from Chile (Coleoptera). — Proc. R. Ent. Soc. London, 1945, (B) 14:73-76, 10 fgs.

Janssens, A., Monographie des *Scarabaeus* et genres voisins. — Mém. Mus. Hist. Nat. Belg., Bruxelles, 1940, (2) 16, 81 pgs., 3 pls., 16 fgs.

Taurocopris mirabiliformis n. sp. (Brasil).

Jeannel, R., Les Calosomes (Coleoptera, Carabidae). — Mém. Mus. Hist. Nat. Paris (n. s.), 1940, 13, pgs. 1-240, 8 pls., 208 fgs.

Descreve espécies e subespécies novas de *Callitropa* e *Carabomimus* do México.

Jeannel, R., & Paulian, R., Morphologie abdominale des Coléoptères et systématique de l'ordre. — Rev. Franç. Ent., Paris, 1944, 11:66-110, 131 fgs.

John, H., *Solitarius*, eine neue Gattung der Notiophygidae (Discolomidae), Col. — Ent. Bl., Krefeld, 1943, 39:28-30, 1 pl.

S. schaumii n. sp. (Brasil).

John, H., Zwei neue Species der Gattung *Fallia* Sharp (Notiophygidae). — Ent. Bl., Krefeld, 1944, 40:87-90, 1 pl.

F. schmidtii (Costa Rica) e *brasiliensis* (Brasil) n. spp.

Kleine, R., Neue Brenthiden aus dem orientalischen und nearktischen Gebiet. — Ent. Bl., Krefeld, 1942, 38:130-131, 6 fgs.

Traz a descrição de *Tinoteramocerus stratiorrhinoides* n. sp., de Cuba.

Kleine, R., Neue Brenthiden des Pariser Museums (Coleoptera). — Rev. Franç. Ent., Paris, 1944, 10:149-158, 11 fgs.

Novidades da região neotrópica, nos gêneros *Arrhenodes*, *Brenthus*, *Nemocephalus* e *Proteramocerus*.

Korschefsky, R., Kritische Bemerkungen ueber Coccinellidentypen von Theodor Kirsch mit Beschreibung einer neuen Art und Form. — Ent. Bl., Krefeld, 1944, 40:133-137.

Trata sobre espécies de *Prodilis*, *Scymnus* e *Zenoria*.

Kuschel, G., Aportes entomologicos. I (Curculionidae). — An. Soc. Cient. Argent., Buenos Aires, 1945, 139:120-136.

Lane, F., Sobre os tipos e a sinonímia de alguns Canthonini (Col. Scarabaeidae). — Papéis Avulsos, Dep. Zool. Secr. Agric. São Paulo, 1946 7 (13):171-179.

Crítica de um trabalho de Paulian.

Lengersdorf, F., Revision der suedamerikanischen Lycoriiden aus der Sammlung des Naturkundemuseums Stettin. — Decheniana, Bonn, 1942, 101 AB: 98-99.

- Lepesme, P., Un remarquable Cérambycide nouveau de Guyane. — Rev. Franç. Ent., Paris, 1943, 9: 135-137, 1 fg.
- Lepesme, P., Les Coléoptères des denrées alimentaires et des produits industriels entreposées. — Encycl. Ent., Paris, (1944) 1945, (A) 22, 335 pgs., 12 pls., 233 fgs.
- Madel, W., Zur Kenntnis der Biologie einiger *Dermestes*-Arten (Col. Dermestidae). — Ent. Bl., Krefeld, 1941, 37:17-21, 3 fgs., 107-111, 1 pl., 2 fgs.; 1942, 38:217-219, 1 fg., 1 graf.; 1943, 39:31-33, 1 fg.
- Discute os caracteres diferenciais de *Dermestes peruvianus* e *haemorrhoidalis*, assim como a sinonímia no gênero.
- Monrós, F., Algunos coleópteros de interés forestal observados en la Isla Victoria (Gobernación del Neuquen). — Rev. Fac. Agron. Vet., Buenos Aires, (1943) 1944, 10:536-543, 2 fgs.
- Monrós, F., Descripción de un nuevo clítrido argentino (Col. Chrysomeloidea). — Rev. Fac. Agron. Vet., Buenos Aires, 1944, 11:148-152, 2 fgs.
- Cylindrodachrys cleroides* n. g. n. sp. (Argentina, Paraguai).
- Navajas, E., Os genótipos da fam. *Fulcidacidae* (Col. Chrysomeloidea). — Papéis Avulsos, Dep. Zool. Secr. Agric. São Paulo, 1946, 7 (21): 243-246.
- d'Orchymont, A., Contribution à l'étude des Palpicornia. XIV. — Bull. Ann. Soc. Ent. Belg., Bruxelles, 1940, 80:157-197, 12 fgs.
- Descrições de espécies sul-americanas dos gêneros *Berosus*, *Derallus*, *Hemiosus* e *Oocylus*.
- d'Orchymont, A., Palpicornia (Coleoptera). I-VI. — Bull. Mus. Hist. Nat. Belg., Bruxelles, 1941, 17 (1), 23 pgs., 5 fgs., 17 (63), 5 pgs.; 1942, 18 (26), 20 pgs., 1 fg., 18 (62), 16 pgs., 6 fgs.; 1943, 19 (22), 8 pgs., 2 fgs., 19 (60), 12 pgs., 3 fgs.
- Novas espécies da América do Sul, de *Berosus*, *Cercyon*, *Enochrus* e *Tropisternus*.
- d'Orchymont, A., Revision des *Laccobius* américains (Coleoptera Hydrophinae Hydrobiini). — Bull. Mus. Hist. Nat. Belg., Bruxelles, 1942, 18 (30), 18 pgs., 1 mapa, 9 fgs.
- Traz duas novas espécies do México.
- d'Orchymont, A., Contribution à l'étude de la tribu Hydrobiini Bedel, spécialement de sa sous-tribu Hydrobiae (Palpicornia-Hydrophilidae). — Mém. Mus. Hist. Nat. Belg., Bruxelles, 1942, (2) 24:68 pgs., 4 fgs.
- Descrições de espécies neotropicais dos gêneros *Anacaena*, *Berosus*, *Crenitis*, *Enochrus*, e *Paracymus*.
- d'Orchymont, A., Faune du Nord-est Brésilien (récoltes du Dr. O. Schubart). Palpicornia. — Mém. Mus. Hist. Nat. Belg., Bruxelles, 1943, (2) 28:85 pgs., 12 fgs.
- Novas espécies sul-americanas de *Ochthebius* e *Phaenotum*.
- Park, O., New and little known Pselaphidae (Coleoptera) from Brazil, Colombia and Mexico, with keys to Mexican genera and species. — Bull. Chicago Acad. Sci., 1944, 7:227-267, 2 pls.
- Várias novas espécies de *Decarthron*.
- Park, O., A preliminary study of the Pselaphidae (Coleoptera) of the Guianas. — Bull. Chicago Acad. Sci., 1945, 7:277-327, 7 pls.
- Novas espécies de *Rhinosceps* (*Rhafrhis* subg. n.) e *Thesiastes*.
- Park, O., Further studies in Pselaphidae (Coleoptera) of Mexico and Guatemala. — Bull. Chicago Acad. Sci., 1945, 7:331-443, 11 pls.
- Espécies novas dos gêneros *Anchylarthron*, *Arthmius*, *Bunoderus*, *Caligocara* n. g., *Cupila* (*Cutrimia* subg. n.), *Dranisaxa* n. g., *Mitona*, *Phalepsus*, *Pselaphellus*, *Reichenbachia*, *Rexius*, *Scalenarthrus* e *Sebaga*.
- Parsons, C. T., A revision of Nearctic Nitidulidae (Coleoptera). — Bull. Mus. Comp. Zool., Harvard, Cambridge, Mass., 1943, 92: 119-278, 13 pls.

- Paulian, R., Les premiers états des Staphylinidea (Coleoptera). Etude de morphologie comparée. — Mém. Mus. Hist. Nat., Paris (N. S.), 1941, 15:361 pgs., 2 pls., 1367 fgs.
- Paulian, R., Les Coléoptères. Formes, mœurs, rôle. — Paris, Payot, 1943, 396 pgs., 14 pls., 164 fgs.
- Pjatakowa, V., Neue Chalcolepidiinae (Col. Elat.). — Dtsch. Ent. Z., Berlin, 1941:97-110.
- Descrições de novas espécies neotropicais dos gêneros *Chalcolepidius*, *Semiotinus* n. g. e *Semiotus*.
- Portevin, G., Description de Liodides nouveaux (Col.). — Rev. Franç. Ent., Paris, 1942, 9:75-78, 3 fgs.
- Traz espécies novas de *Aglyptinus* e *Cyrtusa*, de Guadeloupe e do Brasil.
- Potts, R. W. L., A key to the species of Cremastocheilini of North America and Mexico (Coleoptera, Scarabaeidae). — Bull. Brookl. Ent. Soc., 1945, 40:72-78.
- Rees, B. E., Taxonomy of the larvae of some North American species of the genus *Dermestes* (Coleoptera, Dermestidae). — Proc. Ent. Soc. Washington, 1947, 49 (1): 1-14, 35 fgs.
- Trabalho muito útil também para o nosso ambiente, possibilitando a classificação das larvas dos *Dermestes*, insetos cosmopolitos.
- Saylor, L. W., Studies in the Melolonthine scarab beetle genera of the American continents. — Wasmann Collector, San Francisco, 1945, 6: 79-81, 1 fg.
- Contém a diagnose de *Zaburina colombiana* n. g. n. sp., da Colômbia.
- Silvestri, F., Descrizione di un nuovo genere termitofilo di Scarabaeidae (Insecta Coleoptera) del Brasile. — Boll. Lab. Ent. Portici, 1940, 3:344-353, 8 fgs.
- Scarabaeinus* n. g. *termitophilus* n. sp.
- Silvestri, F., Descrizioni e notizie di Staphylinidae termitofili sud-americani. — Commentationes, Pont. Acad. Scient., Vaticano, 1946, 10 (9), 13 fgs.
- O autor apresenta descrições de 12 espécies de estafilínideos termitófilos, das quais 10 novas, e todos de aspecto muito aberrante, do Brasil e da Argentina.
- Silvestri, F., Nuovi stafilinidi dell'America meridionale. — Rend. R. Accad. Sc. Fiz. Mat. Soc. Real. Napoli, 1946 (4) 14:1-24, 12 fgs.
- Descreve numerosos gêneros e espécies novas.
- Strohecker, H. F., Three new species of Endomychidae (Coleoptera). — Amer. Mus. Novit., New York, 1945, no. 1275, 3 pgs., 7 fgs.
- 2 novas espécies de *Amphix*, do Peru.
- Van Dyke, E. C., New species of North American Coleoptera. — Pan-Pac. Ent., San Francisco, 1945, 21:101-109.
- Badister mexicanus* n. sp. (Carabidae).
- Voss, E., Monographie der Rhynchitinen-Tribus Rhinocartini sowie der Gattungsgruppe Eugnamptina der Tribus Rhynchitini. IV. Teil der Monographie der Rhynchitinae-Pterocolinae. — Dtsch. Ent. Z., Berlin, 1941:113-215, 1 mapa, 12 fgs.
- Contém descrições de novas espécies de *Eugnamptus*, de vários subgêneros, da América do Sul.
- Voss, E., Ein Ueberblick ueber die bisher bekannt gewordenen Arten der Gattung *Ancylorrhynchus* aus der Unterfamilie Petalochilinae (Col. Curc.). — Ent. Bl., Krefeld, 1943, 39:60-64, 1 fg.
- Contém a descrição de novas espécies e subespécies do Brasil e Paraguai.
- Voss, E., Einige nachtraeglich bekannt gewordene exotische Attalabinen und Apoderinen (Col. Curculionidae). — Rev. Franç. Ent., Paris, 1943, 10:29-34, 3 fgs.
- Traz descrições de novas espécies de *Omolabus*, da região neotrópica.

Wittmer, W., Nuevos Cantharidae (Col.). — Rev. Soc. Ent. Argent., Buenos Aires, 1945, 12:313-326, 6 fgs.

Descrições de novas espécies de *Discodon*, *Maltypus*, *Plectonotum*, *Silis*, e *Silisdiscodon*.

Lepidoptera.

Apolinar Maria, H., Miscelanea entomologica. I. Algo sobre esfin-
gidos colombianos. — Rev. Acad. Colomb. Cienc., Bogotá, 1946, 7 (25-
26):53-57, 3 pls.

Beebe, W. & Fleming, H., The Sphingidae (moths) of Kartabo,
British Guiana, and Caripito, Venezuela. — Zoologica, N. Y., 1945,
30:1-6.

Bell, E. L., A catalogue of the Hesperioidea of Venezuela. — Bol. Ent.
Venez., Caracas, 1946, 5 (3-4):65-203.

Catálogo comentado, com todas as indicações usuais e necessárias.

Berger, L., Comment connaître le sexe des Lépidoptères dans certains
cas difficiles (sans recourir aux genitalia). — Lambillionia, Bruxelles,
1944, 44:11-13.

Bounhiol, J. J., Nymphes acephales prématurées chez le ver à soie
(*Bombyx mori* L.). — C. R. Soc. Biol., Paris, (1944) 1945, 138:418-420.

Brown, F. M., Notes on Mexican butterflies, V. — J. New York Ent.
Soc., 1945, 53:31-46.

Bryk, F., Ueber die Schmetterlingsausbeute der Schwedischen wissen-
schaftlichen Expedition nach Patagonien 1932-1934. Report number 11
from the Ljungner Expedition 1932-1934. — Ark. Zool., Stockholm,
1945, 36A (3): 30 pgs., 2 pls.

Este trabalho, que trata de lepidópteros da Patagônia, traz as des-
crições de numerosos gêneros e de muitas espécies, das seguintes famí-
lias: *Satyridae* (*Cosmosatyrus*, *Erebina* n. g., *Maniola*, *Neomaenas*);
Nymphalidae (*Chilargynnis* n. g.); *Pieridae* (*Tatochila*); *Hesperiidae* (*Ar-
gopteron*, *Butleria*, *Hylephila*); *Saturniidae* (*Ormiscodes*, *Automeris*); *Cos-
sidae* (*Allocossus* n. g., *Diarthrosia* n. g.); *Hepialidae* (*Callipielus*, *Hua-
pina* n. g.).

Carpenter, G. D. H. & Hobby, B. M. On *Limenitis bredowi* Geyer
(Lep. Nymphalidae), with description of a new subspecies and revival
of another. A study in geographical distribution and speciation. —
Trans. R. Ent. Soc., London (1944) 1945, 94:311-346, 4 pls., 2 fgs.,
2 mapas.

Chiarelli de Gahan, A., Larva de microlepidóptero que ataca al
lino *Eulia loxonephes*, Meyr (Tortricidae). — (Publ.) Inst. Sanid.
Veget., Buenos Aires, 1945, 1 (2):11 pgs., 3 pls.

Clench, H. K., Notes on Lycaenid butterflies. — Bull. Mus. Comp.
Zool. Harvard, Cambridge, Mass., 1944, 94:215-245.

Traz a revisão do grupo *Thecla acaste*, com descrição de numero-
sas novas espécies sul-americanas.

Comstock, W. P., Insects of Porto Rico and the Virgin Islands. Le-
pidoptera (suborder) Rhopalocera (superfamily) Papilionoidea (true
butterflies) (superfamily) Hesperioidea (skippers). — Sci. Surv. Porto
Rico, New York, 1944, 12:419-622, 12 pls., 29 fgs.

Descrições de *Nymphalidae* (*Dryas*, *Euptoieta*, *Limenitis*); *Hesperiidae*
(*Achlyodes*, *Astraptes*, *Atalopedes*, *Urbanus*).

Forbes, W. T. M., The genus *Phyciodes* (Lepidoptera, Nymphalinae).
— Ent. Amer., Lancaster, Pa., (n. s.), (1944) 1945, 24:139-206, 8 pls.

Ford, E. B., Studies on the chemistry of pigments in the Lepidoptera,
with reference to their bearing on systematics. 4. The classification
of the Papilionidae. — Trans. R. Ent. Soc., London, (1944) 1945,
94:201-223, 1 fg.

Goodson, F. W., Notes and descriptions of new species of American Theclinae contained in the British Museum (Natural History) (Lep. Lycaenidae). — Entomologist, London, 1945, 78:169-171, 184-187.

Numerosas espécies novas de *Thecla*, da região neotrópica.

Heinrich, G., The genus *Fundella* Zeller: A contribution towards a revision of the American Pyralidoid moths of the family Phycitidae. — Proc. U. S. Nat. Mus., Washington, 1945, 96: no. 3190, pgs. 105-114, 3 pls.

Contém a descrição de *Fundella ignobilis* n. sp., da América Central.

Hovanitz, W., The distribution of *Colias* in the equatorial Andes. — Caldasia, Bogotá, 1945, 3:283-300, 1 mapa, 1 graf.

Hovanitz, W., Comparison of some Andean butterfly faunas. — Caldasia, Bogotá, 1945, 3:301-306, 1 fg.

Koehler, P. E., Les Noctuidae argentinos. Subfamilia Agrotinae. — Acta Zool. Lilloana, Tucuman, 1945, 3:59-134, 2 pls., 13 fgs.

O presente trabalho traz a lista dos *Agrotinae* da Argentina, dá uma chave para a sua determinação, e descreve espécies novas dos gêneros *Agrotis*, *Euxoa*, *Lycophotia*, *Metalepsis*, *Noctulizeria* n. g. e *Stenagrotis*.

Lepage, H. S., Giannotti, O. & Orlando, A., Combate ao mandarová da mandioca (*Erinnys ello* (L.)). — O Biológico, São Paulo, 1947, 13 (4):76-80, 1 pl.

Moss, A. M., The *Castnia* of Pará, with notes on others (Lep., Castniidae). — Proc. R. Ent. Soc., London, 1945, (B) 14:48-52.

Nabokov, V., Notes on Neotropical Plebejinae (Lycaenidae, Lepidoptera). — Psyche, Cambridge, Mass., 1945, 52:1-61, 8 pls., 1 fg.

O autor introduz numerosos gêneros novos, baseados em espécies antigas.

Oiticica Filho, J., Nova espécie do gênero *Paradaemonia* e notas sobre as espécies atins (Lepidoptera Arsenurinae). — Sum. Bras. Biol., Rio de Janeiro, 1946, 1 (10):143-154, 1 fg., 8 pls.

P. berlai n. sp. (Pernambuco, Alagoas).

Rakshpal, R., On the structure and development of the male reproductive organs in the Lepidoptera. — Indian J. Ent., New Delhi, (1944) 1945, 6:87-93, 9 fgs.

Shvanvich, B. N., On the ground-plan of the wing pattern of Lepidoptera (Russo, com resumo inglês). — Zool. Zh., Moscou, 1945, 24:99-111, 8 fgs.

Steinberg, D. M., Regulation processes in the metamorphosis of insects. Self-differentiation of the wing in butterflies. — C. R. Acad. Sci. URSS (n. s.), 1945, 48:68-71, 1 fg.

Travassos, L., Contribuição ao conhecimento dos Arctiidae. XI. Gênero *Utetheisa* Huebner, 1819. Verificação de *U. pulchella* (L., 1758) Kirby, 1892, no Nordeste do Brasil. — Rev. Brasil. Biol., 1946, 6 (3):343-354, 25 fgs.

Redescreve detalhadamente *U. ornatrix* (L.) e *U. pulchella* (L.).

Travassos, L., Contribuição ao conhecimento dos Arctiidae. XII. Gênero *Isia* Walker, 1856. — Rev. Brasil. Biol., 1947, 7 (2):181-194, 26 fgs.

Redescreve detalhadamente o gênero, com três espécies, das quais uma nova.

Travassos Filho, L., Notas de Nomenclatura. I. Estado atual dos gêneros *Methysia* Butler, 1876, e *Metamya*, novo nome para *Paramya* Druce, 1898 (Lep.: Ctenuchidae). — Papéis Avulsos. Dep. Zool. Secr. Agr. São Paulo, 1946, 7 (23):257-266.

Vazquez, G. L., Contribución al conocimiento de los lepidópteros mexicanos. VIII. Estudio de la metamorfosis de *Citheronia splendens*

(Druce) (Lepidoptera: Adelocephalidae). — An. Inst. Biol. Mexico, 1944, 15:223-233, 7 fgs.

Descreve *Citheronia splendens queretana* subsp. n.

Diptera.

Abbott, C. E., The mechanics of digestion in *Phaenicia* (*Lucilia*) *sericata* Meig. (Diptera). — J. New York Ent. Soc., 1945, 53:227-230.

Aczél, M., Sammelreferat der bionomisch-oekologischen Literatur ueber Dorylaiden, ferner ueber die Morphologie der juengeren Entwicklungsstadien (Ei, Larve, Pupa). Dorylaidenstudien VII. (Dipt.). — Dtsch. Ent. Z., Berlin, 1943:1-27, 1 fg.

Resumo da bibliografia sobre a biologia dos Dorylaidae, assim como sobre a morfologia de seus estádios evolutivos.

Alexander, C. P., New or little-known Tipulidae (Diptera) LXXII-LXXIII. Neotropical species. — Ann. Mag. Nat. Hist., London, 1945, (11) 12:8-38, 234-264, 9 fgs.

Descrições de espécies novas dos gêneros *Atarba*, *Brachypremna*, *Erioptera*, *Gonomyia*, *Limonia*, *Molophilus*, *Neognophomyia*, *Orimarga*, *Polymera*, *Styringomyia*, *Teucholabis* e *Tipula*.

Alexander, C. P., Records and descriptions of Neotropical crane flies (Tipulidae, Diptera), XIX-XX. — J. N. Y. Ent. Soc. 1945, 53:49-61, 279-291.

Novidades dos gêneros *Brachypremna*, *Erioptera*, *Gnophomyia*, *Gonomyia*, *Heliis*, *Limonia*, *Neognophomyia*, *Oxydiscus*, *Tanyremna* e *Teucholabis*.

D'Andretta Jr., C. & D'Andretta, M. A. V., As espécies neotropicais da família Simuliidae Schiner (Diptera Nematocera) II. *Lutzsimulium cruzi* n. gen. n. sp. e nova concepção das asas dos Simulídeos. — Mem. Inst. Oswaldo Cruz, Rio de Janeiro, (1946) 1947, 44 (3): 401-412, 35 fgs.

Lutzsimulium cruzi n. gen. n. sp. (São Paulo).

Barretto, M. P., Uma nova espécie de Flebótomo do Estado de Goiás, Brasil, e chave para determinação das espécies afins (Diptera, Psychodidae). — Rev. Brasil. Biol., 1946, 6 (3):427-434, 6 fgs.

F. longipennis n. sp.

Barretto, M. P., Sobre a sinonímia de flebótomos americanos (Diptera, Psychodidae). Primeira nota. — Rev. Brasil. Biol. (1946) 1947, 6 4:527-536.

O autor trata da sinonímia de *F. baduelensis* Floch & Abonnenc, *F. antunesi* Coutinho, *F. nordestinus* Mangabeira e *F. flaviscutellatus* Mangabeira.

Bates, M., Observations on climate and seasonal distribution of mosquitoes in eastern Colombia. — J. Anim. Ecol., London, 1945, 14:17-25, 1 pl., 3 fgs.

Bohart, G. E., The Phorid flies of Guam. — Proc. U. S. Nat. Mus., vol. 96, 1947, págs. 397-416, 46 fgs.

Traz espécies novas de *Megaselia* (*setifemur*, *suis*, *stuntzi*, *parabasiseta*), *Chonocephalus* (*hirsutus*, *subglaber*), *Puliciphora* (*wymani*, *nigri-ventris*) e *Parafannia* n. g. (*molluscovora*).

Briceño-Iragorri, L., Breve nota acerca de un nuevo simulido para el país. — Bol. Lab. Clin. Luis Razetti, Caracas, 1946, 15 (21-22):493-495.

Trata-se de *Simulium pertinax* Kollar.

Carpenter, S. J., Packing mosquito larvae for storage or shipment. — J. Econ. Ent., Menasha, 1945, 38:501.

Carrera, M., Sobre o gênero *Cerozodus* Bigot, 1857 (Diptera, Asilidae). — Papéis Avulsos, Dep. Zool. Secr. Agric. São Paulo, 1946, 7 (22):247-256, 14 fgs.

Redescreve-se o genotipo de *Cerozodus*. Bigot, 1857, discutindo os caracteres e as afinidades do gênero.

Causey, O. R., Deane, L. M. & Deane, M. P., *Anopheles aquasalis* vs. *Anopheles tarsimaculatus* as the name for the brackish water Anopheline of Central and South America and the Caribbean Islands. — J. Nat. Malaria Soc., Tallahassee, 1945, 4:243-250.

Neste trabalho os autores dão uma lista das espécies do subgênero *Nyssorhynchus*.

Cooper, J. L. & Rapp, Jr., W. F., Check list of Dixidae of the World. — Canad. Ent., Guelph, (1944) 1945, 76: 247-252, 1 fg.

Cortés, P., R., Las especies chilenas del género *Sturmia* R. D. (Dipt., Tachinidae). — Bol. Mus. Nac. Hist. Nat., Santiago, 1944, 22:159-167.

Cortés, P., R., Nuevo nombre genérico para un taquinideo de la Republica Argentina (Dipt., Tachinidae). — Act. Zool. Lilloana, Tucumán, 1944, 2:255-257.

Cortés, P., R., Especies chilenas de los géneros *Phorocera* R. D. y *Parasetigena* B. B. (Dipt. Tachinidae). — Acta Zool. Lilloana, Tucumán, 1945, 3:157-164.

Duas novas espécies de *Phorocera* são descritas, e uma chave para as espécies chilenas de *Parasetigena* é apresentada.

Dampf, A., Notas sobre flebotômidos mexicanos. I. — Rev. Soc. Mexicana Hist. Nat., 1944, 5:237-254, 4 pls.

Del Vecchio, V., Ricerche microbiologiche sull'evoluzione metamorfosale degli anofeli. — Riv. Parassit., Roma, 1942, 6:87-91.

Enderlein, G., Klassifikation der Pyrgotiden. — S. B. Ges. Nat.-F. Berlin, (1941) 1942: 98-134.

Contém vários novos gêneros para a região neotropical, como *Loпадops*, *Porpedrum*, *Stirothrinx* e *Tropidothrinx*, todos com espécies novas como genotipos.

Eymelt, H., Zwei neue Conopiden aus Suedamerika. (Ins. Dipt.). — Senckenbergiana, Frankfurt a. M., 1942, 25:53-55, 2 fgs.

Aconops pallipes n. sp. e *Physoconops pulvillus* n. sp. (Brasil).

Floch, H. & Abonnenc, E., Simulides de la Guyane Française (II). *S. cauchense* n. sp., *S. oyapockense* n. sp., *S. iracouboense* n. sp. — Inst. Pasteur Guyane Terr. Inini, 1946, publ. 137, 19 pgs., 6 fgs.

Floch, H. & Abonnenc, E., Simulides de la Guyane Française. I. *S. guianense* Wise, 1911, *S. rorotaense* n. sp., *S. maroniense* n. sp. — Inst. Pasteur Guyane Terr. Inini, 1946, publ. 146, 20 pgs., 10 fgs.

Floch, H. & Abonnenc, E., Distribution des Anophèles en Guyane Française. — Inst. Pasteur Guyane Terr. Inini, 1947, publ. 144, 9 pgs., 1 mapa.

Floch, H. & Abonnenc, E., Distribution des moustiques du genre *Culex* en Guyane Française. — Inst. Pasteur Guyane Terr. Inini, 1947, publ. 146, 9 pgs., 1 pl.

Fluke, C. L., The Melanostomini of the Neotropical region (Diptera, Syrphidae). — Amer. Mus. Novit., New York, 1945, no. 1272, 29 pgs., 59 fgs.

Contém descrições de numerosas espécies novas de *Melanostoma* (com o novo subgênero *Talahua*) e *Rhytops*.

Fox, I. & Hoffman, W. A., New neotropical biting sandflies of the genus *Culicoides* (Diptera: Ceratopogonidae). — Puerto Rico J. Publ. Hith. Trop. Med., San Juan, 1944, 20:108-111, 5 fgs.

Traz cinco espécies novas.

Freire, S. A. & Faria, G. S., Criação e alguns dados sobre a biologia do *Anopheles* (*N.*) *darlingi*. — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (1):57-66.

- Goffe, E. R., The type-species for Meigens "1800" genera in the Syrphidae (Diptera). — Ent. Month. Mag., London, 1945, 81:241-248.
- Goldschmidt, R. B., Evolution of mouth parts in Diptera — a counter critique. — Pan-Pac. Ent., San Francisco, 1945:43-47.
- Hering, E. M., Neue Gattungen und Arten palaearktischer und exotischer Fruchtfliegen. — Siruna Seva, Berlin, 1942, 4:1-31, 25 fgs.
 Novas espécies neotropicais de *Euribia*, *Hexaresta* n. g., *Rhachiptera* e *Trypanea*.
- Hering, E. M., Neue Gattungen und Arten von Fruchtfliegen der Erde. — Siruna Seva, Berlin, 1944, 5:1-17, 8 fgs.
 Contém a descrição de duas novas espécies de *Paroxyna*, do México e do Peru.
- Hull, F. M., Some undescribed Syrphid flies. — Proc. New England Zool. Cl., Cambridge, Mass., 1945, 23:71-78.
 Novas espécies neotropicais dos gêneros *Ceratophya*, *Epistrophe*, *Microdon* e *Xanthandrus*.
- Iriarte, D. R., La familia Simuliidae en Venezuela. Capitulo II. — Bol. Lab. Clin. Luis Razetti, Caracas, 1946, 15 (21-22):401-482, 21 fgs.
 Esta parte trata da sistemática e da distribuição dos simuliídeos venezuelanos.
- James, M. T., A new larvaevorid parasite of the social butterfly *Eucheira socialis* Westwood (Diptera). — J. Wash. Acad. Sci., 1945, 35:328-330, 2 fgs.
Eucheirophaga lugubris n. g. n. sp. (Ernestiinae).
- León, J. R. de, Apuntes para una monografía sobre los Simúlidos de Guatemala. Nuevas especies de Simúlidos en la región occidental de Guatemala. — Guatemala, 1945, 12 pgs., 16 fgs., 1 mapa, 1 fot.
- Lopes, H. de Souza, Contribuição ao conhecimento das espécies do gênero *Oxysarcodexia* Townsend, 1917 (Diptera, Sarcophagidae). — Bol. Esc. Nac. Veterinária, Rio de Janeiro, (1945) 1946, 1:62-134, 162 fgs.
 Este trabalho, onde são referidas 49 espécies, das quais 14 novas, é praticamente uma revisão do gênero. Figuras detalhadas das partes genitais acompanham as descrições.
- Lucena, D. T., Esboço ecológico do *A. (N.) tarsimaculatus* Goeldi, 1905, no Nordeste Brasileiro. — Folha Médica, Rio de Janeiro, 1946, 27 (15): 46 pgs., 11 fgs.
- Malogolowkin, C., Sobre o gênero *Rhinoleucophenga* com descrição de cinco espécies novas (Drosophilidae, Diptera). — Rev. Brasil. Biol., 1946, 6 (3):415-426, 17 fgs.
 A autora dá uma chave para a classificação das espécies do gênero, redescreve o mesmo, assim como *R. obesa* (Loew), a sua espécie tipo, dando ainda diagnoses de *R. matogrossensis*, *nigrescens*, *personata*, *lopesi* e *angustifrons* n. spp., todas do Brasil.
- Matheson, R., Descriptions of two new species, *Paratrachobius anduzei* and *Nycteribosca franclemonti* (Streblidae, Diptera, Pupipara). — J. Parasit., Lancaster, Pa., 1945, 31:191-194, 2 fgs.
 A primeira espécie mencionada provém da Venezuela.
- Mazing, R. A., Variation and inheritance of photoreactions in *Drosophila melanogaster*. (Em russo, com resumo inglês). — J. Gen. Biol., Moscou, 1943, 4:209-231, 19 fgs.
- Monchadskii, A. S., The mechanism of digestion in the larvae of *Chaoborus* (Diptera, Culicidae). — Zool. Zh., Moscou, 1945, 24:90-98.
- Nájera, L., Metodo nuevo para el transporte das larvas de Culicidos. — Bol. Soc. Españ. Hist. Nat., Madrid, 1944, 42:471-476.
- Oliveira, S. J. & Moussatché, I., Ação do DDT (Dicloro-difenil-tricloreto) sobre larvas e pupas de *Musca domestica* Linneu. — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (1):67-72, 4 fgs.

Os autores estudaram os efeitos do DDT em várias concentrações, sobre larvas e pupas de *Musca domestica* L., observando alterações morfológicas e biológicas.

Peláez, D., Anofelinos de México. 1. Clave para la determinación de las especies y subespecies, baseada en los caracteres de las hembras adultas. — Ciencia, México, D. F., 1945, 6:69-77, 2 pls., 23 fgs.

Pereira, C., A luta contra as moscas. — O Biológico, São Paulo, 1947, 13 (2):25-43, 4 fgs.

Noções práticas sobre o combate.

Pratt, H. D., Wirth, W. W. & Denning, D. G., The occurrence of *Culex opisthopus* Komp in Puerto Rico and Florida, with a description of the larva (Diptera, Culicidae). — Proc. Ent. Soc. Wash., 1945, 47:245-251, 2 pls.

Rachou, R. G., Da domesticidade dos anofelíneos do subgênero *Kerteszia* no litoral do Estado de Santa Catarina. — Folha Médica, Rio de Janeiro, 1946, 27 (14): 8 pgs.

Rachou, R. G., O *Herpetomona pessoai* Galvão & Coutinho, 1941, parasitando o A. (N.) *cruzii* Dyar & Knab, 1908. — Folha Médica, Rio de Janeiro, 1946, 27 (14), 2 pgs.

Rachou, R. G. & Ferreira, M. O., Algumas observações sobre o índice larvário de Anofelíneos do subgênero *Kerteszia* em bromeliáceas e sua densidade larvária no sul do Brasil. — Folha Médica, Rio de Janeiro, 1946, 27 (20):, 9 pgs.

Rachou, R., Da infectividade dos anofelíneos do subgênero *Kerteszia* pelos parasitas da malária humana. — Folha Médica, Rio de Janeiro, 1946, 27 (23): 10 pgs.

Rapp, Jr., W. F., Check-list of Psychodidae of South and Central America. — J. New York Ent. Soc., 1945, 53:21-30.

Rapp, Jr., W. F., New Psychodidae from Barro Colorado Island. — J. New York Ent. Soc., 1945, 53:309-312, 1 pl.

Descrição de espécies novas dos gêneros *Kupara* n. g. e *Psychoda*.

Rubtsov, I. A., Faune de l'URSS. Insectes Diptères. Vol. VI. No. 6. Fam. Simuliidae. (Em russo, com descrições de novas espécies e chaves em inglês). — Moscow Inst. Zool. Acad. Sci. URSS (n. s.), no. 23, 1940, IX+533 pgs., 93 fgs.

Este trabalho contém uma lista dos gêneros, subgêneros e espécies do mundo.

Séguy, E., Etude sur les Diptères Hippelatoïdes pathogènes (mouches des yeux) de la région néotropicale (Diptera, Chloropidae). — Mém. Mus. Hist. Nat. Paris (n. s.), 1940, 13:331-357, 14 fgs.

Contém chaves para a classificação das espécies de *Hyppelates*, com a descrição de várias espécies novas de países da América Latina.

Séguy, E., Quelques Cératopogonides vulnérants parasites des insectes. — Rev. Franç. Ent., Paris, 1942, 9:82-88, 6 fgs.

Descreve *Phasmidohelea wagneri* n. sp., do Brasil.

Silvestri, F., Contributo alla conoscenza dei Phoridae (Ins. Diptera) termitofili del Brasile. — Acta Pont. Acad. Scient., Vaticano, vol. 10, 1947, págs. 281-296, 82 fgs.

Descreve as seguintes espécies novas: *Puliciphora inquirenda*, *Typhlophorina* n. g. *psociformis* e *Paurophora borgmeieri*; e redescreve *Termitophorides heterospinalis* Borgm. Houve engano evidente na colocação genérica de *inquirenda* n. sp., que certamente não pertence a *Puliciphora*. — (T. Borgmeier.)

Silvestri, F., Seconda nota su alcuni termitofili dell'Indocina con una appendice sul *Macrotermes Barneyi* Light. — Boll. Lab. Ent. Agr. Portici, vol. 7, 1947, págs. 13-39, 132 fgs.

Refere-se principalmente à fam. Phoridae, e descreve *Palpiclavina tonkinensis* n. g. n. sp., *Oligophora pallida* n. g. n. sp. e *Rhynchomicropte-*

ron caecutiens Schmitz. O gênero *Oligophora*, que o Autor considera "aliquantum proximum" de *Puliciphora*, sem dúvida é um representante da família Termitoxeniidae. — (T. Borgmeier.)

Smart, J., The classification of the Simuliidae (Diptera). — Trans. R. Ent. Soc. London, 1945, 95:463-528.

Contém uma chave para os gêneros, e o catálogo das espécies conhecidas.

Stebbins, Jr., C. L., Evidence for abnormally slow rates of evolution, with particular reference to the higher plants and the genus *Drosophila*. — Lloydia, Menasha, 1945, 8:84-102.

Steiner, G., Eine Zuchtweise fuer Fleischfliegen. — Zool. Anz., Leipzig, 1942, 138:97-106, 3 fgs.

Stuardo, O., C., Catalogo de los dipteros de Chile. — Imprenta Universitaria, Santiago, 1947, 250 pgs., 4 fgs.

Esta obra, indispensável a todos os estudiosos da fauna sul-americana, refere todas as espécies de dípteros até agora encontrados no Chile, incluindo uma lista bibliográfica muito bem cuidada. Várias famílias foram revistas pelos respectivos especialistas, e, como apêndice, aparece um trabalho de Sabrowsky sobre duas espécies novas de *Ocnaea* (Acroceratidae). Mais este valioso trabalho deve a Entomologia Americana ao consagrado especialista em *Nemestrinidae*, Dr. Carlos Stuardo Ortiz. — (Hugo de Souza Lopes.)

Vargas, L., Algunas consideraciones sobre *Anopheles occidentalis* Dyar & Knab 1906. — Rev. Inst. Salub. Enferm. Trop. Mexico, 1944, 5:215-220, 2 fgs.

Vargas, L., Simúlidos del Nuevo Mundo. — Mexico, Inst. Salub. Enferm. Trop., 1945, VI+251 pgs., 10 pls.

Vargas, L., Nota sobre Ceratopogónidos y *Culicoides*. — Rev. Inst. Salub. Enferm. Trop., Mexico, 1945, 6:41-49, 2 pls.

O autor dá uma lista das espécies de *Culicoides* do Novo Mundo, tratando ainda da morfologia de várias espécies.

Vargas, L., Tres nuevos nombres propuestos para Simúlidos del Nuevo Mundo. — Rev. Med. Trop. Parasit., Habana, 1945, 11:4-5.

Vargas, L., Cuatro nuevas especies y otros datos sobre Simúlidos de México. — Rev. Soc. Mexicana Hist. Nat., 1945, 6:71-82, 6 pls.

Weathersbee, A. A., A note on the mosquito distribution records of Puerto Rico and the Virgin Islands. — Puerto Rico J. Publ. Hlth. Trop. Med., San Juan, 1944, 19:643-645.

Zukel, J. W., Marking *Anopheles* mosquitoes with fluorescent compounds. — Science, Lancaster, Pa., 1945, 102:157.

Hymenoptera.

Alpatov, V. V., The occurrence of parthogenetic females in some strains of honeybees. (Em russo). — Advances Modern Biol., Moscou, 1945: 281-282.

Araujo, R. L., Angiopolybia nom. n., para o conceito revalidado de *Stenopolybia* Ducke, 1914 (Hym. Vespidae, Polybiinae). — Papéis Avulsos, Dep. Zool. Secr. Agric. São Paulo, 1946, 7 (12):165-170.

Banks, N., Psammocharidae (Spider-wasps): notes and descriptions. — Bull. Mus. Comp. Zool. Harvard, Cambridge, Mass., 1944, 94:165-187.

Novas espécies neotropicais de *Priocnemella*, *Priocnemis* e *Psammochares*.

Bradley, J. C., The generic position of nineteen species of West Indian Psammocharidae (Hymenoptera) with descriptions of two new genera or subgenera. — Mem. Soc. Cubana Hist. Nat., 1946, 18 (1):123-131.

Brun, R. & Kutter, H., Ein mehrtaegiger Grossraubzug von *Formica sanguinea* ohne Zwischenheimkehr und seine instinktpsychologische Deutung. — Mitt. Schweiz. Ent. Ges., Bern, 1947, 20 (4):278-290, 2 graf.

Os autores relatam interessantes observações sobre uma campanha guerreira de *F. sanguinea*, tendo os insetos ficado fora do ninho por 6 dias consecutivos, estabelecendo, para assim dizer, depósitos de campanha, para onde levaram as pupas roubadas, conservando-as aí até o dia da volta definitiva para o ninho. Os autores dão uma interpretação deste fenômeno até agora não observado, baseados sobre as teorias da psicologia do instinto.

Bugbee, R. E., Eight new species of the genus *Eurytoma* from Mexico and Guatemala (Hymenoptera, Eurytomidae). Parts V and VI. *quadrata* and *corpulenta* groups. — Ann. Ent. Soc. Amer., Columbus, 1945, 38: 53-69, 1 mapa, 4 fgs.

Contém uma lista das espécies mexicanas, das quais 8 novas.

Bugbee, R. E., Eleven new species of *Eurytoma* from Mexico (Eurytomidae: Hym.) Parts III and IV. *breviura* and *aureata* groups. — Ann. Ent. Soc. Amer., Columbus, 1945, 37:420-438, 11 fgs., 2 mapas.

Busnel, R. G. & Drilhon, A., La riboflavine (vitamine B₂) dans la glande à venin des Hyménoptères. — C. R. Soc. Biol. Paris, 1941, 135:1008-1009.

Donisthorpe, H. St. J. K. & Morley, B. D. W., A list of scientific terms used in myrmecology. — Proc. R. Ent. Soc. London, 1945, (A) 20:43-49.

Donisthorpe, H., Collecting ants. — Amateur Entomologists' Society, Londres, 1946, 12 pgs.

Noções úteis sobre a coleta, preparação e criação das formigas em laboratório.

Gahan, A. B., Eight new species of chalcid-flies of the genus *Pseudaphycus* Clausen, with a key to the species. — Proc. U. S. Nat. Mus., Washington, 1946, 96 (3200):311-327.

Além de outras, também é descrita uma nova espécie de Cuba.

Grandi, G., Catalogo ragionato degli Agaonidi di tutto il mondo descritti fino ad oggi (3a. edizione). — Boll. Ist. Ent. Bologna, 1941, 13: 1-28.

Mao, Y., Synopsis of the Mexican species of *Cardiochiles* Nees (Hymenoptera, Braconidae). — Pan-Pac. Ent., San Francisco, 1945, 21: 125-134, 1 fg.

Uma revisão das espécies mexicanas do gênero, com uma chave para a sua classificação; duas são novas.

Mickel, C. E., Three new species of Mutillidae from Peru and Bolivia (Hymenoptera). — Ann. Ent. Soc. Amer., Columbus, 1945, 38:38-44.

Descrições em *Hoplocrates* e *Traumatomutilla*.

Moure, J., C. M. F., Novos agrupamentos genéricos e algumas espécies novas de abelhas sul-americanas. — Museu Paranaense, Publ. Avulsas N. 3, 1947, 37 págs.

Traz gêneros novos das famílias: Halictidae (*Rhynchalictus*, *Halictillus*, *Rhectomia*) e Megachilidae (*Tetranthidium*, *Stenanthidium*, *Trichanthidium*, *Allanthidium*, *Bothranthidium*, *Nananthidium*, *Dichanthidium*, *Epanthidium*, *Hypanthidiodes*. 8 espécies são descritas como novas, incluindo uma de *Chilicola* (Hylaeidae) e outra de *Euglossa* (Euglossidae).

Moure, J., C. M. F., Meliponas do Brasil. — Chac. e Quintais, S. Paulo, Nov. 1946, págs. 609-612, 5 fgs.

Divide os Apidae em Apinae e Meliponinae, e propõe três tribos para os Meliponinae: Lestrimelittini, Trigonini e Meliponini. Descreve também *Friesella* n. g. (tipo *Paratrigona schrottkyi*).

- Murray, W. D., Taxonomic value of male genitalia in Sphecoid Hymenoptera. — Ann. Ent. Soc. Amer., Columbus, 1945, 38:121-124, 1 pl.
- Popov, V. V., Parasitism in bees, its peculiarities and evolution. (Em russo, com resumo em inglês). — J. Gen. Biol., Moscou, 1945, 6:183-203.
- Popov, V. V., On the morphological reduction in the male genitalia of bees (Hymenoptera, Apoidea). (Em russo, com resumo em inglês). — Zool. J., Moscou, 1945, 24:329-336, 3 fgs.
- Richards, W. O., A revision of the genus *Mischocyttarus* de Saussure (Hymen., Vespidae). — Trans. R. Ent. Soc., London, 1945, 95:295-462, 4 pls., 119 fgs.
- Uma revisão do gênero, com descrições de várias espécies e sub-espécies novas.
- Santis, L. de, Taxonomia de la familia Aphelinidae (Hymenoptera, Chalcidoidea). — Rev. Mus. La Plata (n. s.), sec. zool., 1946, 5:1-21, 3 fgs.
- O autor propõe uma nova classificação dos afelinídeos, com três sub-famílias: *Aphelininae*, *Coccophaginae* e *Calesinae*. Chaves facilitam a classificação dos gêneros das duas primeiras subfamílias.
- Schneirla, T. C., The army-ant behaviour pattern: nomad-statory relations in the swarmers and the problem of migration. — Biol. Bull., Lancaster, Pa., 1945, 88: 166-193, 1 fg.
- Schwarz, H. F., The wax of stingless bees (Meliponidae) and the uses to which it has been put. — J. N. Y. Ent. Soc., 1945, 53:137-144.
- Shvanvich, B. N. & Lopatnikov, S. N., Bees and beekeeping. — Saratov, Regional Publishers, 1945, 152 pgs., 86 fgs.
- Tafall, B. F. Osorio, La pretendida diferencia genética entre dos tipos de machos de *Telenomus*. — Ciencia, México, 1945, 6:83-84.

Hemiptera.

- Carvalho, J. C. M., Mirídeos neotropicais, XXIII: Um gênero e três espécies novas colecionadas em Araceae e Bromeliaceae (Hemiptera). — Bol. Mus. Nac., n. s., Zool., 1946, no. 61:1-6, 5 pls.
- Traz as descrições de *Eurycipitia bromeliae* n. sp., *Zikaniola elegans* n. g. n. sp. e *Neoneella bosqi* n. sp., as duas primeiras do Brasil, a última da Argentina.
- Carvalho, J. C. M., Mirídeos neotropicais XXVI: Gênero *Herdonius* Stal e descrição de dois gêneros novos do Brasil e Guiana Holandesa. — Bol. Mus. Nac., Rio de Janeiro, n. s., Zool., 1946, no. 72:1-13, 25 fgs.
- Descreve *Herdonius armatus* Stal, *Guianella marmorata* n. g. n. sp. e *Brasiliomiris ernestoi* n. g. n. sp.
- Carvalho, J. C. M., Dois gêneros de *Isometopidae* da fauna neotrópica (Hemiptera). — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (2):255-260, 11 fgs.
- Descreve *Aristolesia carioca* n. gen. n. sp. (Rio de Janeiro) e *Plau-mannocoris rarus* n. gen. n. sp. (Santa Catarina), ambos próximos de *Corticoris* McA. & Malloch.
- Carvalho, J. C. M., Mirídeos neotropicais, XXIX: *Itacoris* n. gen., e três espécies novas de gêneros já revistos (Hemiptera). — An. Acad. Brasil. Cienc., Rio de Janeiro, 1947, 19 (1):103-111, 18 fgs.
- O autor descreve *Itacoris nigrioculis* n. g. n. sp., do Rio de Janeiro, assim como novas espécies nos gêneros *Guianella*, *Macrolophus* e *Pachymerocerus*.
- Carvalho, J. C. M., Mirídeos neotropicais, XXVII: Gêneros *Porpomiris* Berg, *Lampethusa* Distant, *Cyrtopeltis* Fieber e *Dicyphus* Fieber (Hemiptera). — Bol. Mus. Nac., n. s., Zool., Rio de Janeiro, 1947, 44 pgs., 64 fgs.

O autor redescobre várias espécies antigas e descreve algumas novas, sendo as espécies de *Cyrtopeltis* de importância para a entomologia aplicada.

China, W. E., A completely blind bug of the family Lygaeidae (Hemiptera Heteroptera). — Proc. R. Ent. Soc., London, 1945, (B) 14:126-128, 1 fg.

Anommatorcoris minutissimus n. g. n. sp. (Trinidad).

Drake, C. J., New Tingidae (Hemiptera). — Bull. South. Calif. Acad. Sc., 1945, 44 (3):96-100.

O autor descreve o novo gênero *Idiostyla*, com o genotipo *Tigava anomae* Drake & Hambleton, e discute a distribuição geográfica do gênero *Caloloma* Drake & Bruner, descrito das Antilhas.

Ferris, G. F. & Usinger, R. L., Notes and descriptions of American Polychtenidae (Hemiptera). — Pan-Pacific Ent., 1945, 21 (4):121-124.

Traz as descrições de *Hesperoctenes limai* n. sp. (Brasil) e *H. parvulus* n. sp. (Venezuela).

Floch, H., & Abonnenc, E., Note sur l'élevage des Triatomides à l'Institut Pasteur de la Guyane. — Publ. Inst. Pasteur Guyane, Cayenne, 1942, no. 33, 10 pgs., 2 fgs.

Harris, H. M. & Drake, C. J., A new *Brachymetra* from Peru with a list of known species (Hemiptera, Gerridae).

B. mera n. sp.

Lent, H. & Wygodzinsky, P., Sobre algumas espécies de *Zelurus* Hahn (Reduviidae, Hemiptera). — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (1):25-55, 42 fgs.

Os autores tratam de 35 espécies, das quais 4 novas.

Lwoff, M. & Nicolle, P., Alimentation artificielle de *Triatoma infestans* (Réduvidé hémophage) à l'aide de sérum vitaminé. — C. R. Soc. Biol. Paris, 1944, 138:205-206.

Monte, O., Revisão do gênero *Leptocysta* Stal (Hemiptera, Tingidae). — Rev. Brasil. Biol., 1946, 6 (3):325-331, 6 fgs.

Contém as redescições de *L. sexnebulosa* (Stal), *novatis* Drake e a diagnose de *L. tertia* n. sp., da Argentina.

Nicolle, P., Appareil pour l'alimentation artificielle des Réduvidés hémophages. — Bull. Soc. Path. Exot., Paris, 1941, 34:179-185, 1 fg.

Nicolle, P. & Lwoff, M., Thermotropisme et alimentation artificielle des Réduvidés hémophages. — C. R. Soc. Biol., Paris, 1944, 138:164-165.

Nicolle, P., & Lwoff, M., L'acide pantothenique dans la nutrition de l'Hémiptère hémophage *Triatoma infestans* Klug. — C. R. Soc. Biol., Paris, (1944) 1945, 138:341-343, 1 graf.

Pinto, C. & Lent, H., Novo hemíptero hematófago do gênero *Panstrongylus* Berg, 1879. — Rev. Brasil. Biol., (1946) 1947, 6 (4):459-465, 19 fgs.

Panstrongylus diasi n. sp. (Minas Gerais).

Rosewall, O. W., The male genital segment of Pentatomidae. — Proc. Louisiana Acad. Sci., Baton Rouge, (1939) 1941 5:33-34.

Sailer, R., *Dysdercus bimaculatus* Stal, 1850, restored (Hemiptera, Pyrrhocoridae). — Proc. Ent. Soc., Washington, 1947, 49 (1):15-19, 4 fgs.

D. maculatus Stal não é sinônimo de *D. obliquus* (Herrich-Schaeffer).

Sauer, H. F. G., O percevejo rajado do algodoeiro (*Horcius nobilellus* (Berg)). — O Biológico, São Paulo, 1947, 13 (3):51-55, 1 fg.

Considerações práticas sobre o mirídeo em questão, considerado pelo autor como uma praga muito perigosa do algodoeiro.

Schrader, F., The cytology of regular heteroploidy in the genus *Loxa* (Pentatomidae-Hemiptera). — J. Morph., Philadelphia, 1945, 76:157-177, 1 pl., 4 fgs.

Usinger, R. L., Notes on the genus *Cryptostemma* with a new record for Georgia and a new species from Puerto Rico (Hemiptera: Cryptostemmatidae). — Ent. News, 1945, 56 (9):238-241.

Traz a descrição de *Cryptostemma pratti* n. sp., com notas sobre biologia e a morfologia da genitália.

Usinger, R. L., Notes and descriptions of *Ceratocombus* (Hemiptera: Cryptostemmatidae). — Proc. Haw. Ent. Soc., 1946, 12 (3):633-636.

Traz notas sobre a distribuição de *C. (Xylonannus) vagans* McAtee & Malloch, e descreve *C. (Ceratocombus) yunquensis* n. sp., de Porto Rico.

Usinger, R. L., Notes on the synonymy and classification of the Enicocephalidae. — Ann. Ent. Soc. Amer., 1946, 39 (2):170.

Notas sobre as monografias da autoria de Usinger e de Jeannel.

Usinger, R. L., An annectent genus of Cimicoidea from Baltic amber (Hemiptera). — Psyche, 1942, 49 (3-4):41-46, 1 fg.

Descreve o interessante gênero *Electrocoris*, com duas espécies.

Usinger, R. L., Notes and descriptions of *Ambrysus* Stal with an account of the life history of *Ambrysus mormon* Montd. (Hemiptera, Naucoridae). — Univ. Kansas Sc. Bull., 1946, 31 (1) (10):185-210, 1 pl.

Traz as seguintes espécies novas da América Latina: *A. infuscatus*, *barberi*, *caliginosus*, *fossatus*, *hungerfordi*, *convexus*, *fuscus*, *variegatus*, *sonorensis*, *lundbladi*, e *vanduzeei*.

Villiers, A., Homochromie et mimétisme chez les Réduvidés. (Insectes Hémiptères). — La Nature, Paris, 1945, no. 2082:59-61, 4 fgs.

Wygodzinsky, P., Sobre um novo gênero e uma nova espécie de Microphysidae do Brasil. — Rev. Brasil. Biol., 1946, 6 (3): 333-340, 21 fgs.

Lopesiella mirabilis n. g. n. sp.

Wygodzinsky, P., Sobre duas novas espécies de Emesinae do Brasil, com notas sobre *Stenolemoides arizonensis* (Banks) (Reduviidae, Hemiptera). — Rev. Brasil. Biol., (1946) 1947, 6 (4):509-519, 56 fgs.

Descreve *Dohrnemesa feminatus* e *Stenolemoides arizonensis* n. spp., figurando também alguns caracteres de *Stenolemoides arizonensis* (Banks).

Wygodzinsky, P., Contribuição ao conhecimento do gênero *Heniarthes* Spinola, 1837 (Apiomerinae, Reduviidae, Hemiptera). — Arq. Mus. Nac., Rio de Janeiro, 1947, 41:3-65, 216 fgs.

Este trabalho trata da morfologia, sistemática, biologia e distribuição geográfica das espécies do gênero, sendo descritas 23 espécies novas, de vários países da região neotrópica.

Wygodzinsky, P., Novas contribuições ao conhecimento dos *Stenolemus* das Américas (Emesinae, Reduviidae, Hemiptera). — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (1):127-144, 30 fgs.

O autor apresenta uma chave para a maioria das espécies das Américas, e descreve e figura 5 espécies novas, do Panamá, Venezuela, Brasil e Argentina.

Homoptera.

Averill, A. W., Supplement to food-plant catalogue of the aphids of the world, including the Phylloxeridae. Index to genera and species of food plants. — Bull. Maine Agric. Exp. Sta., Orono, 1945, no. 393-S, 50 pgs.

Black, L. M. & Oman, P. W., Parthenogenesis in a leafhopper, *Agallia quadripunctata* (Provancher) (Homoptera, Cicadellidae). — Proc. Ent. Soc. Washington, 1947, 49 (1):19-20.

Trata-se aparentemente do primeiro caso de partenogenese em Homoptera Auchenorrhyncha.

Blanchard, E. E., Descripciones y anotaciones de afidoideos argentinos. — Acta Zool. Lilloana, Tucumán, 1944, 2:15-62, 13 fgs.

O autor descreve espécies novas dos gêneros *Aphis*, *Baizongiella*, *Capitophoraphis* n. g., *Macrosiphum*, *Paraprociophilus*, *Paratoxoptera* n. g. e *Pineus*.

Caldwell, J. S., The genus *Cedusa* in Mexico and Central America (Hom. Fulg.). — An. Esc. Nac. Cienc. Biol. Mexico, 1944, 3:445-454, 2 pls.

Contém a descrição de muitas espécies novas.

Caldwell, J. S., Notes on Issidae from Mexico (Homoptera: Fulgoroidea). — Ann. Ent. Soc. Amer., Columbus, 1945, 38:89-120, 4 pls.

Descrição de gêneros e espécies novos.

Caminha Filho, A., A cigarrinha dos canaviais *Tomaspis liturata* (Lepelletier et Serville, 1825) var. *ruforivulata* Stal, 1854. — Rio de Janeiro, Inst. Alcool Açúcar, 1944, 19 pgs., 5 pls., 8 fgs.

Carter, W., The oral secretions of the pineapple mealybug. — J. Econ. Ent., Menasha, 1945, 38:335-338, 3 fgs.

DeLong, D. M., The genus *Chlorotettix* (Homoptera Cicadellidae) in Mexico. — Lloydia, Menasha, 1945, 8:1-30, 104 fgs.

Uma revisão das espécies mexicanas, sendo descritas muitas novas do México e de outros países da América Latina.

DeLong, D. M., A new genus, *Retusanus*, and five new species of Mexican leafhoppers (Homoptera, Cicadellidae). — Pan-Pac. Ent., 1945, 21:135-140, 2 pls.

Fennah, R. G., The Cixiini of the Lesser Antilles (Homoptera: Fulgoroidea). — Proc. Biol. Soc. Wash., 1945, 58:133-146, 2 pls.

Novas espécies de *Cyclopolarus* n. g., *Oliarus* e *Vincentia*.

Fennah, R. G., Characters of taxonomic importance in the pretarsus of Auchenorrhyncha (Homoptera). — Proc. Ent. Soc. Wash., 1945, 47:120-128, 2 pls.

Fennah, R. G., The Tropiduchidae of the Lesser Antilles (Homoptera: Fulgoroidea). — Proc. Ent. Soc. Wash., 1945, 47:137-167, 2 pls.

O trabalho contém, além de muitas descrições, chaves para a classificação dos *Tambiniini* e *Cyphoceratopini* do Novo Mundo.

Fennah, R. G., The external male genitalia of Fulgoroidea (Homoptera). — Proc. Ent. Soc. Wash., 1945, 47:217-229, 3 pls.

Fennah, R. G., Tropiduchidae and Kinariidae from the greater Antilles (Homoptera: Fulgoroidea). — Psyche, Cambridge, Mass., 1945, 52:119-138, 2 pls.

Numerosas descrições.

Maltais, J. B., A simple method of mounting Aphids on microscope slides. — Canad. Ent., Guelph, 1945, 77:103-104.

Metcalf, Z. P., General catalogue of the Hemiptera. Fasc. IV. Fulgoroidea. Part 4. Derbidae. Part 5. Achilixidae. Part 6. Meenoplidae. Part 7. Kinnaridae. — Northampton, Mass., Smith Coll., 1945, 252 pgs.

Metcalf, Z. P., Fulgoroidea (Homoptera) of Kartabo, Bartica District, British Guiana. — Zoologica, New York, 1945, 30:125-144, 3 pls.

Diagnoses de espécies novas, dos gêneros *Dictyophora*, *Taosa*, *Oliarus*, *Pintalia*, *Eucanyra*, *Mysidia*, *Neocenchrea*, *Syntames*, *Eurocerus* n. g., e *Flatoidinus*.

Naidu, M. B., A special technique for the identification of the Membracidae species by the intracellular micro-organisms of their tumours. — Curr. Sci., Bangalore, 1945, 14:210-211, 4 fgs.

Pesson, P., Contribution à l'étude morphologique et fonctionnelle de la tête, de l'appareil buccal et du tube digestif des femelles de Coccides. — Monogr. Sta. Lab. Rech. Agron., Paris, 1944, 266 pgs., 1 pl., 152 fgs.

Plummer, C. C., New Membracidae from Central America. — Proc. Ent. Soc. Washington, 1945, 47:39-44, 1 pl.

Novas espécies dos gêneros *Hemicardiacus* n. g. e *Poppea* (Guatemala e El Salvador).

Russel, L. M., A new genus and twelve new species of Neotropical whiteflies (Homoptera: Aleyrodidae). — J. Wash. Acad. Sci., Menasha, 1945, 35:55-65, 30 fgs.

Soukup, J., S. S., Lista de algunos homópteros peruanos. — Bol. Mus. Hist. Nat. "Javier Prado", Lima, 1945, 9 (34-35):274-284.

Tuthill, L. D., Contributions to the knowledge of the Psyllidae of Mexico (conclusão). — J. Kansas Ent. Soc., Manhattan, 1945, 18:1-29, 4 pls.

Descrições nos gêneros *Ceropsylla*, *Kuwayama* e *Myrmecephala* n. g., e *Trioza*.

Orthoptera sensu lato.

Ander, K., Ueber die von C. Stal beschriebenen Stenopelmatiden (Salt.). — Ent. Tidskr., Stockholm, 1943, 64:198-201.

Chauvin, R., Une nouvelle méthode d'appréciation de l'effet de groupe chez les acridiens migrants. — Ann. Sci. Nat., Paris, (1943) 1944, (11) 5:79-87, 4 fgs.

Chopard, L., La vie des sauterelles. — Paris, Gallimard, 1945, 204 pgs., 18 pls., 15 fgs.

Ebner, R., Die Adventiv-Fauna an Orthopteren in Oesterreich. — Zbl. Gesamtgebiet Ent., Lienz (Tirol), 1946, 1 (4):109-122, 8 fgs.

Trata de vários blattídeos da fauna neotropical, introduzidos na Austria acidentalmente.

Hepper, H. C., Notas ecológicas, sistemáticas y zoogeográficas de Acridios de la Argentina. — Rev. Soc. Ent. Argent., Buenos Aires, 1945, 12:280-298, 5 pls.

La Greca, M., Nuovo contributo alla conoscenza di alcuni Mantidi dell'America centrale e meridionale. — Boll. Lab. Zool. Portici, 1940, pgs. 306-310, 3 fgs.

Trata de *Gonatista major*.

Liebermann, J., Sinopsis del género *Psiloscirtus* Bruner con datos acerca de su zoogeografía (Orth. Acrid. Cyrtacanth. Ommatolampid). — Acta Zool. Lilloana, Tucumán, 1945, 3:151-156, 2 pls.

Liebermann, J., Síntesis de *Ophtalmolampis* Sauss., con algunas consideraciones acerca de su morfología y su zoogeografía (Orth. Acrid. Romaleinae). — Publ. Inst. San. Veg., Buenos Aires, 1945, 1A (7), 12 pgs., 1 mapa, 8 fgs.

Liebermann, J. & Ruffinelli, A., Catalogo de acridoideos uruguayos. — Rev. Asoc. Ing. Agr., 1946, 74:9-21.

Catálogo comentado.

Liebermann, J., Sobre una colección de acridoideos brasileños del Instituto Oswaldo Cruz (Orth., Acridoidea). — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (2):165-171.

Enumeração de várias espécies.

Rehn, J. A., Three new species of the *reticulosa* group of the Blattid genus *Cariblatta* (Orthoptera, Blattidae, Pseudomopinae). — Notulae Nat., Philadelphia, 1945, no. 149, 15 pgs., 12 fgs.

Cariblatta hylaea, *icarus* n. spp. (Honduras), *hebardi* n. sp. (Puerto Rico).

Rehn, J. A. G., A new genus and species of Phanopterinae from Eastern Peru (Orthoptera, Tettigoniidae). — Notulae Nat., Philadelphia, 1945, no. 150, 7 pgs., 6 fgs.

Parangara campae n. g. n. sp.

Rehn, J. A., Man's uninvited fellow traveler — the cockroach. — Sc. Month., 1945, 61:265-276, 11 fgs.

Trata das diversas espécies domésticas da família Blattidae.

Rehn, J. A., A new genus and species of Phaneropterinae from Eastern Peru (Orthoptera: Tettigoniidae). — Not. Nat., 1945, 150:1-7, 6 fgs.

Descreve *Parangara camp* n. g. n. sp.

Rehn, J. A., One new genus and six new species of Central American and Colombian Pseudophyllinae (Orthoptera: Tettigoniidae). — Trans. Am. Ent. Soc., 1946, 77:1-26, 16 fgs., 2 pls.

Traz novas espécies de *Blastes*, *Goethalsiella* e *Sterphoter* n. g.

Soukup, J., Los Proscopidos del Museo de Historia Natural "Javier Prado". — Bol. Mus. Hist. Nat. "Javier Prado", Lima, 1944, 8:242-259, 4 fgs.

Descreve várias espécies conhecidas.

Trichoptera, Thysanoptera, Dermaptera, Odonata.

Calvert, P. P., A new species of Brazilian Libellulinae (Odonata) and their nearest allies. From the collections of the Divisão de Caça e Pesca. — Bol. Mus. Nac., Rio de Janeiro, n. s., 1946, Zool. no. 69, 4 pgs., 3 fgs.

Micrathyra kleerekoperi n. sp.

Chen, S. H., The tegminal tracheation of Dermaptera and its phylogenetic significance. — Sinensia, (?Chungking), 1944, 15:127-128, 1 fg.

Crawford, J. C., A new genus and species of Thripidae from bulbs (Thysanoptera: Thripidae). — Proc. Ent. Soc. Washington, 1945, 47:179-182.

Bolbothrips aztecus n. g. n. sp. (México).

Deoras, P. J., On the comparative morphology and evolution of adult Trichoptera. Part II. Internal morphology. — Indian J. Ent., New Delhi, (1944) 1945, pgs. 35-48, 5 pls.

Machado Filho, J. P. & Castro, A. L., *Spongiphora moreirai* nome novo para *Spongiphora dissimilis* Moreira, 1930, com redescricao do macho (Labiidae, Dermaptera). — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (1):1-3, 5 fgs.

Santos, N. D. dos, *Microthyria borgmeieri* n. sp. (Odonata, Libellulidae). — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (2):215-218, 9 fgs.

A nova espécie foi encontrada no Estado do Espírito Santo.

Schmid, F., Notes sur l'armature céphalique des Sericostomatinae (Trichopt.). — Mitt. Schweiz. Ent. Ges., Bern, 1947, 20 (4):332-340, 15 fgs.

O autor descreve detalhadamente o "scent-organ" situado na base das antenas, destacando a sua importância para a taxonomia do grupo.

Schmidt, E., Revision der Gattung *Zonophora* Selys (Odonata, Gomphidae neotrop.). — Dtsch. Ent. Ztschr., Berlin, 1941:76-96, 12 fgs.

Descreve várias espécies e subespécies novas, e dá uma chave para as espécies do gênero.

Suctoria, Mallophaga, Anoplura, Psocoptera.

Carriker, Jr., M. A., Studies in neotropical Mallophaga (IX). Amblycera of the new world Galliformes. Part I. The genus *Menacanthus* Neumann. — Rev. Acad. Colomb. Cienc., Bogotá, 7 (25-26):115-137, 75 fgs.

Traz numerosas espécies e subespécies novas.

Costa Lima, A. da & Hathaway, C. R., Pulgões, bibliografia, catálogo e animais por elas sugados. — Monografias Inst. Oswaldo Cruz, Rio de Janeiro, (1946) 1947, no. 4, 522 pgs.

Obra exaustiva.

- Edney, E. B., Laboratory studies on the bionomics of the rat fleas, *Xenopsylla brasiliensis*, Baker, and *X. cheopis* Roths. I. Certain effects of light, temperature and humidity on the rate of development and on adult longevity. — Bull. Ent. Res., London, 1945, 35:399-416, 2 fgs.
- Stojanovich, Jr., C. J., The head and mouthparts of the sucking lice (Insecta: Anoplura). — Microentomology, Stanford Univ., 1945, 10:1-46, 26 fgs.
- Williner, G. J., Cinco especies nuevas misioneras del género *Psocus* (Corrod. Psoc.). — Rev. Soc. Ent. Argent., Buenos Aires, 1945, 12: 235-243, 1 pl.
- Zavaleta, D., Una nueva especie de *Trochiloectes* (Mallophaga). — An. Inst. Biol. Mexico, 1943, 44:613-618, 1 fg.
T. ochoterenai n. sp. (México).
- Zavaleta, D., Estudio de los Mallophaga de México. — An. Inst. Biol. Mexico, 1944, 15:193-211, 6 fgs.
Contém a descrição de *Colpocephalum hoffmanni* n. sp.

**Strepsiptera, Zoraptera, Isoptera, Collembola,
Thysanura.**

- Aubertot, M., Présence d'un vaisseau dorsal contractile chez les Proctoures du genre *Acerentomon*. — C. R. Acad. Sc., Paris, 1939, pgs. 120-122.
- Agrell, I., The collembolus in nests of warmblooded animals with a method for sociological analysis. — Lunds Univ. Arsskrift, N. F., vol. 41 (10), 1945, 19 pgs.; também: Kungl. Fysiogr. Saellsk. Handl. N. F., vol. 56 (10).
- Barlet, M. J., Remarques sur la musculature thoracique des machilides (insects thysanoures). — Ann. Soc. Sc. Bruxelles, 1946, Ser. 2, 60:77-84, 2 fgs.
Menciona a espécie brasileira *Machilellus silvestrii* Wygod.
- Carpentier, F., Des insectes extraordinairement anciens. — Bull. Soc. Naturalistes Belges, 1946, nos. 7-8, 4 pgs., 4 fgs.
Resumo das pesquisas mais recentes sobre os colémbolos devonianos do "Old Red Sandstone".
- Carpentier, F., Sur la valeur morphologique des pleurites du thorax des Machilides (Thysanoures). — Bull. Ann. Soc. Ent. Belgique, vol. 82, 1946, pgs. 165-181, 6 fgs.
- Chang, S., Anatomy of the digestive and reproductive systems of a silverfish, *Lepisma* sp. — New Agric., Fukien, 1943, 3:254-259, 2 pls.
- Emerson, A. E., The neotropical genus *Syntermes* (Isoptera: Termitidae). — Bull. Amer. Mus. Nat. Hist., New York, 1945, 83:427-472, 1 mapa, 11 fgs.
Uma revisão do gênero, com a descrição de várias espécies novas.

Dado à publicidade em 26 de Agosto de 1947.

Redator: Frei Thomaz Borgmeier, O. F. M., Convento S. Antônio,
Largo da Carioca, Rio de Janeiro, Brasil

Printed in Brazil

Impresso nas Oficinas Gráficas da Editora Vozes Ltda., Petrópolis, R. J.

Notas Entomológicas da Baía. XIX.

Por Gregório Bondar, Biologista da Secretaria da Agricultura
do Estado da Baía

Sumário.

I. Estudos em Curculionídeos (Col.) sul-americanos

Subfamília Belinae

Sobre a biologia de *Homalocerus*
Chave para as espécies de *Homalocerus*
Homalocerus zikani n. sp.
Homalocerus xixim n. sp.

Subfamília Rhynchitinae

Aditamento biológico na subfamília Attelabinae

Subfamília Prionomerinae

Prionomerus flavicornis Fabr.
Prionomerus abdominalis Boh.
Prionomerus aesopus F.
Prionomerus flavoscutellatus n. sp.
Meroprion lauracel n. sp.
Meroprion justus n. sp.
Scymnoplastophilus bicolor n. sp.

Sobre a biologia da subfamília Tachygoninae

Subfamília Ceratopinae

Ceratopus bisignatus Sch.
Ceratopus sampsoni n. sp.
Chelotonyx subcallosus (Voss) Bond.

Subfamília Magdalinae

Apocnemidophorus hustachei n. sp.
Laemosaccus drewsi n. sp.

II. Algumas correções e sinonímias

III. Bibliografia.

Estudos em Curculionídeos (Col.) Sul-Americanos.

Subfamília Belinae

Nesta antiga subfamília são conhecidos presentemente 8 gêneros com o total de 135 espécies, das quais apenas onze do novo continente; as restantes pertencem à fauna australiana. As espécies sul-americanas formam dois gêneros: *Dicordylus*, com 4 espécies, todas do Chile, e 7 espécies constituem o gênero *Homalocerus*. Dessas espécies uma é chilena e seis são brasileiras.

No estudo especulativo da filogenia e genealogia dos Curculionídeos, a subfamília Belinae é de máximo interesse pela morfologia arcaica. E' o elo mais primitivo que liga os atuais Curculionídeos a outros grupos fitófagos.

Possui antenas não ácotoveladas, filiformes, como os Crisomelídeos e Bruchídeos e sem a clava antenal diferenciada. As antenas não são protegidas pelo sulco do rostro, como é a regra nos Curculionídeos de evolução posterior. O gênero *Homalocerus* possui o corpo longo e paralelo como em Cerambicídeos.

A morfologia primitiva da subfamília sugere a idéia de que esses insetos se criam em plantas mais antigas, as primeiras que

emergiram do meio aquático na evolução do globo terrestre. A hipótese é comprovada pelos fatos.

Sobre a Biologia dos *Homalocerus*.

O Rev. Pe. Guilherme Kuschel, Santiago, Chile, dedicado ao estudo dos Curculionídeos, perguntado por nós sobre a biologia da espécie chilena, escreveu-nos em 20-5-1945: "La semana pasada, visité al Dr. Edwyn Reed en Valparaíso. Entre otras cosas me informé donde el, si efectivamente, había encontrado *Homalocerus miltomerus* Blach. en helechos y el me asegura que sí. Los encontro en cantidades bastante grandes bajo las frondas de *Blechnum chilense* (Kaulf.) Mett. Però acerca de su desarrollo no sabe nada. En general le debo confesar que el aspecto filogenético deducido de su biologia me está interesando muchísimo. Espero que Ud. me va a hacer todavía algunas confidencias de gran utilidad para mí, confidencias que son verdaderamente orientadoras para mí. Ojalá publique también algo en sus artículos. Como para los entomólogos es esta una idea nueva me tomaré la libertad de hablar en la próxima sesión entomologica al respecto con aplicación particular a los Curculionídeos, apoyandome, como tambien lo diré, en las múltiples confidencias que Ud. me hiciera en sus repetidas cartas como también en algunos artículos suyos que traen algo".

A respeito da biologia dos *Homalocerus* brasileiros, recebemos dos nossos correspondentes de S. Catarina e Paraná a comunicação que *Homalocerus lyciformis* Germ. e *H. nigripennis* Boh. se apanham em samambaias ou fetos. Sobre a nova espécie *Homalocerus xixim*, escreve-nos o seu descobridor Felipe Justus Júnior, Ponta Grossa, Paraná, que a espécie foi encontrada em "xixim de espinho, samambaia de tronco, com espinhos nos talos das folhas".

Os testemunhos sobre a biologia da espécie chilena e das espécies brasileiras são apenas indicativos. Para a genealogia dos Curculionídeos seria de máximo interesse investigar a biologia de *Homalocerus*, estudando o ovo, a larva e a arte que esta desenvolve para a sua proteção. Essas pesquisas poderiam fornecer a chave para desvendar a evolução dos Curculionídeos. Evidentemente, numerosas das atuais subfamílias dos Curculionídeos *Phanerognatha* derivam dos *Belinae*. É possível que os Curculionídeos *Adelognatha* derivem independentemente dos *Crisomelídeos*.

Devemos procurar a biologia de *Homalocerus* em plantas

criptogâmicas vasculares, especialmente na família Filicinae, à qual pertence o gênero *Blechnum* e xixim de espinho.

E' possível que esses Curculionídeos não desenvolvam grande arte para proteção das larvas, criam-se estas simplesmente nas folhas ainda enroladas das Filicineas, completando a metamorfose no subsolo.

O Gênero *Homalocerus* Sch., com a Descrição de Duas Espécies Novas.

A diagnose genérica, segundo L a c o r d a i r e, é a seguinte: "Cabeça transversal, fronte em declive; rostró mais longo do que a cabeça, mediocrementemente robusto, cilíndrico, arqueado. Antenas na base do rostró, segmentos 2-10 obcônicos; escudo em triângulo longitudinal curvilíneo. Élitros com epipleuras verticais, bastante largas na metade dianteira".

O "Coleopterorum Catalogus" de W. Junk, Pars 144, de 1935, inclui no gênero 5 espécies. Posteriormente (1937), E. V o s s descreveu *Homalocerus plaumanni* de S. Catarina, e A. H u s t a c h e, em 1940, divulgou mais uma espécie, *H. antennalis* do sul baiano, cujo material lhe tínhamos enviado. Adicionamos mais duas espécies novas.

Chave Para as Espécies de *Homalocerus*.

1. Pronoto com faixa marginal de pêlos coloridos, porém sem mácula na linha mediana 2
- Pronoto, além de faixas coloridas marginais, provido de faixa mediana colorida 6
2. Larga faixa transversal arqueada de pêlos coloridos no terço mediano dos élitros 3
- Élitros sem a faixa transversal colorida 4
3. Prosterno, fêmures dianteiros e epímeros torácicos com densa pilosidade dourada; faixa transversal nos élitros ininterrupta, dourado-amarela 1. *H. lyciformis* Germ.
- Prosterno, fêmures e epímeros pretos; faixa transversal nos élitros esbranquiçada, interrompida na linha sutural 2. *H. zikani* n. sp.
4. Élitros na metade dianteira com pilosidade amarelo-escura; faixa lateral nos élitros, rostró em baixo e prosterno amarelo-pilosos 3. *H. antennalis* Hust.
- Élitros pretos; uma estreita faixa lateral na metade mediana de pêlos branco-amarelados 5
5. Prosterno e coxas dianteiras branco-pilosos, ápice dos élitros sem dente, tíbias inermes 4. *H. nigripennis* Boh.
- Prosterno e coxas dianteiras amarelo-pilosos, ápice dos élitros unidentado, tíbias denteadas 5. *H. plaumanni* Voss
6. Patas ferruginosas 7
- Patas pretas 8
7. Élitros uniformemente escuros, dente no ápice afastado do ângulo sutural 6. *H. miltomerus* Blanch.

- Élitros com pêlos grisalhos, densamente agrupados lateralmente; dente apical no ângulo sutural 7. *H. punctum* Pasc.
 8. Élitros com as faixas sutural e marginais estreitas, amarelas, nos dois terços basais; dente apical curto, perto do ângulo sutural 8. *H. acuminatus* Boh.
 — Élitros amarelo-pilosos nos dois terços basais; ápice inerme 9. *H. xixim* n. sp.

Este grupo de insetos não é muito prolífico e os indivíduos são raros. Evidentemente os meios de defesa não são adequados para as complexas condições atuais. Os representantes de *Homalocerus* são escassos nas coleções entomológicas.

As espécies *Homalocerus lyciformis* e *H. nigripennis* são as mais frequentes. Nos Estados do Sul do Brasil são evidentemente bastante comuns, pois temo-las recebido de vários colecionadores. De *Homalocerus antennalis* colhemos apenas um único exemplar nas matas do Sul baiano nas múltiplas excursões que fizemos durante dezenas de anos. Da mesma zona possuímos um exemplar de *H. acuminatus*.

Passamos a descrever duas espécies novas.

Homalocerus zikani, n. sp.

Preto, cabeça e pronoto lateralmente com faixa de pêlos amarelo-claros; élitros no terço mediano com larga faixa transversal arqueada, interrupta na sutura, prolongada posteriormente na margem, de pêlos amarelo-esbranquiçados. Lado ventral e patas pretos; anéis abdominais 2, 3 e 4 com estreita linha apical amarela; pilosidade curta, esparsa, esbranquiçada.

Rostro preto, com escassos pêlos amarelo-dourados na base, pouco mais longo do que a cabeça. Antenas pilosas; segmentos 1 e 2 curtos, globosos; os restantes cônicos, subiguais, mais longos. Cabeça mais longa do que larga, estreitada atrás dos olhos, salientes lateralmente.

Pronoto mais estreito do que os élitros; linha mediana levemente afundada nos três quartos basais. Élitros paralelos, levemente entalhados na sutura apical, porém sem formar dente nítido.

Derme em toda a superfície áspera, com escamas esparsas curtas. Patas com pilosidade esparsa esbranquiçada; tíbias com um ou vários dentes pronunciados no lado interno.

Compr. 10 mm., largura 2,5 mm.

Descrito sobre 1 espécimen, colhido por J. F. Zikan, Rio de Janeiro. E' a este nosso amável correspondente que dedicamos a espécie.

Holótipo na coleção do autor.

Homalocerus xixim, n. sp.

Preto; a cabeça lateralmente, o pronoto nas margens laterais e na linha mediana e os élitros nos dois terços basais amarelo-pilosos.

Rostro preto, covinhado, mais longo do que a cabeça. Antenas pretas, pilosas. Cabeça mais larga do que longa, olhos salientes. Pronoto paralelo nos dois terços basais, mais estreito do que os élitros, afundado na linha mediana. Escudo escuro. Élitros paralelos, conjuntamente arredondados no ápice, sem dente.

Derme áspera, com pilosidade esparsa curta nas partes pretas. Face ventral com pêlos dourado-amarelos na cabeça, e nos epímeros meso e metatorácicos; o resto preto.

Patas pretas, tíbias na face interna fortemente denteadas.

Compr. 10 mm., largura 2,5 mm.

Descrito sobre 2 espécimens, recebidos de Felipe Justus Júnior, Ponta Grossa, Paraná, sob nº 1235 e 1236. Cotipos na coleção do autor.

Comunica-nos o Snr. Felipe Justus Júnior, que a espécie foi colhida em samambaia arbórea, conhecida no Paraná como "xixim de espinho", espinhenta nos talos foliaes. Não se conhece, porém, a biologia.

Subfamília Rhynchitinae.

Esta subfamília, da autoria de Dalla Torre e Voss, abrange os *Rhynchitides* de Lacordaire. Até 1939 foram descritas na subfamília 877 espécies, constituindo 41 gêneros e 44 subgêneros, subdivididos em 7 tribos.

No continente sul-americano registrou-se apenas a presença das tribos: Rhinomacerini, com o gênero *Rhynchitomacer* tendo duas espécies, e Auletini, com os subgêneros *Mesauletes* Voss, *Gymnauletes* Voss e os gêneros *Minarophilus* Voss e *Pseudauletes* Voss, abrangendo um total de 14 espécies sul-americanas, das quais 10 brasileiras, provindas de S. Catarina, S. Paulo, Rio de Janeiro e Goiás. Data do século passado apenas uma espécie, *Pseudauletes luceus* Gyll. (1839); as outras foram descobertas e descritas nas duas últimas décadas.

Ao lado da subfamília Belinae, representam os Rhynchitinae formas primitivas dos Curculionídeos atuais. Acham-se distribuídos em todos os continentes e ilhas do Pacífico, aclimando-se tanto nos trópicos como nas zonas árticas da Sibéria e do Canadá. Sua biologia é simples, criando-se as larvas nos botões vege-

tativos e florais, nas folhas enroladas e na polpa dos frutos, completando na terra a metamorfose. Constituem pragas da silvicultura e fruticultura. Há espécies que se criam em Coníferas, outras emigraram para as Dicotiledôneas, distribuindo-se sobre múltiplas famílias botânicas.

Possuem antenas retas, não acotoveladas, porém com os segmentos terminais engrossados, protótipo da clava. A cabeça e o rostro assemelham-se aos dos Belinae, porém o corpo é mais curto e as unhas são apendiculadas.

São insetos de tamanho geralmente abaixo de 5 mm. de comprimento, parecidos com Crisomelídeos. Têm voo rápido. São mal representados nas coleções entomológicas brasileiras.

E' provável que o número das espécies no Brasil seja muito maior. E' por isso que desejávamos chamar sobre esta subfamília a atenção dos entomólogos sul-americanos.

Nas nossas coleções possuímos cinco espécies, originárias de Paraná, S. Paulo, Rio de Janeiro e Minas Gerais.

Aditamento Biológico na Subfamília Attelabinae.

Tratamos da biologia dos Attelabíneos baianos nas páginas desta Revista vol. 7, fasc. 2 e 3, 1937, divulgando a biologia de *Hibolabus ater* Oliv., *Euscelus atratus* Voss e *Euscelus vicinus* Voss.

As espécies que seguem, como as já anteriormente divulgadas, têm a biologia simples. As fêmeas recortam as folhas de Dicotiledôneas no terço basal, até a nervura principal ou mais. Enrolam a parte recortada, fazendo um pequeno charuto, pendente na folha, dentro do qual põem um ou dois ovos. As larvas alimentam-se do limbo da folha enrolada e dentro do charutinho completam a metamorfose. Diferem assim dos Rhynchitinae pela arte de recortar e enrolar a folha e pela melhor proteção das larvas dentro do charutinho, não sendo expostas a perigos ao emigrar para completar a metamorfose na terra.

1) *Hybolabus bryanti* Voss: cria-se em Leguminosa não identificada, conhecida no sul baiano como "faveca". Água Preta, Município de Ilhéus.

2) *Hybolabus collaris* Voss: cria-se em folhas de "jequitibá branco", Lecitidiácea, *Cariniana* sp., Água Preta, Município de Ilhéus.

3) *Hybolabus azuripennis* Voss: cria-se em folhas de *Terminalia catappa*, família das Combretáceas, conhecida na Baía co-

mo “amendoeira” ou “chapéu de sol”. É uma espécie exótica, que provavelmente passou para esta árvore de nossas Combretáceas indígenas. Água Preta, Município de Ilhéus.

4) *Euscelus lar* Voss: suspeitamos ser apenas uma variedade de *E. atratus* Voss, possuindo protórax avermelhado. Cria-se em folhas de *Coccoloba ilheense*, Poligonácea. Água Preta, Município de Ilhéus.

5) *Euscelus amplextris* Voss: desenvolve-se em folhas de “araçá de mato”, Mirtácea, Água Preta, Ilhéus.

6) *Euscelus bondari* Voss: cria-se em folhas de “verga d’anta”, *Cassia apoucouita*, Leguminosa; Água Preta, Ilhéus.

7) *Thyreolabus piceus* Germ.: evolui em folhas de “aroeira”, *Schisnus aroeira*, Anacardiácea, litoral norte da Baía.

8) *Xestolabus schirmi* Voss: cria-se em folhas da Euforbiácea *Sebastiania bahiensis* Mull. Arg., Itabuna, sul baiano.

As identificações entomológicas 1-6 devemos a E. Voss, Berlin-Dahlem, que descreveu espécies nossas acima como novas. As duas últimas identificações devemos a Sir Guy A. K. Marshall do Imperial Institute of Entomology, London. As identificações botânicas foram fornecidas por F. C. Hoehne e J. F. Toledo, do Instituto de Botânica de S. Paulo. A todos os nossos sinceros agradecimentos.

Subfamília Prionomerinae.

Da biologia dos Prionomerinae tratamos nas páginas desta Revista, vol. 7, fasc. 1, 1937 e vol. 8, fasc. 1 e 2, 1938. Voltamos ao assunto, completando e corrigindo as observações biológicas e taxonômicas.

Prionomerus flavicornis Fabr.

Esta espécie, bastante característica, cria-se em folhas de uma espécie de louro, conhecido na Baía como “louro sabão”, da família das Lauráceas. Possuímos dezenas de exemplares desse inseto, identificados por Sir Guy A. K. Marshall. Do Estado do Paraná recebemos a mesma espécie, com todos os característicos de *flavicornis*, porém exemplares menores, com as gibbosidades no pronoto e nos élitros menos pronunciados, faltando especialmente a carena no terceiro intervalo na base dos élitros. Não querendo multiplicar a nomenclatura, registramos o fato, atribuindo-o à variabilidade da espécie.

Prionomerus abdominalis Boh. 1843

A espécie foi descrita do Paraná. Possuímos três exemplares que correspondem ao diagnóstico da espécie, há diferença apenas no reflexo da coloração. Os élitros são pretos como na espécie típica, porém com reflexo azul-metálico na faixa submarginal. Rostro e patas dianteiras vermelho-escuros.

Coletamos os exemplares em uma Laurácea no vale do Rio Jequitinhonha, Est. da Baía e no vale do Rio Doce, Estado do Espírito Santo.

Pelo alargamento apical do nono intervalo dos élitros e a saliência basal do terceiro, a espécie se aproxima de *P. vicinus* Voss, 1934, o que nos leva a suspeitar que esta última espécie seja sinônimo de *abdominalis*.

Prionomerus aesopus F. 1801

A espécie foi descrita do Panamá. No sul da Baía, município de Ilhéus, coletamos dezenas de exemplares, que foram identificados pelo Imperial Institute of Entomology, London, como *P. aesopus*.

Posteriormente, tendo mais material, verificamos variações no colorido dos indivíduos e na conformação dos ombros e ângulo externo apical dos élitros. Remetido o material a E. Voss, Berlin-Dahlem, este classificou alguns indivíduos como *P. constricticollis* Voss, 1934, outros como *aesopus* ou variedades, outros como variedades de *constricticollis*, e ainda outros como espécie nova.

Para nós, todos os exemplares remetidos representam a mesma espécie; todos foram colhidos na mesma Laurácea, porém em tempo diferente, variando a coloração desde amarelo-claro até castanho-escuro, conservando o amarelo apenas no abdômen. A configuração dos élitros nos ombros e no ângulo externo apical apresenta todas as gradações. Consideramos, portanto, *P. aesopus* F. como espécie muito variável em colorido e configuração dos élitros, caindo em sinonímia *P. constricticollis* Voss.

Adicionamos uma espécie que julgamos nova.

Prionomerus flavoscutellatus, n. sp.

De um preto carregado; funículo das antenas e patas medianas e posteriores amarelo-avermelhados. Cabeça fortemente estreitada atrás dos olhos; esses são contíguos, pretos, pouco sa-

lientes lateralmente. Antenas ligeiramente antemedianas; escapo claro-avermelhado, funículo pouco mais escuro, clava castanho-escura, mais longa do que o funículo. Rostro pouco mais curto do que o pronoto, luzente, covinhado e opaco na base.

Pronoto densamente covinhado; dorso de perfil com duas leves ondulações na metade basal. Escudo distintamente amarelo, com escamas fortes coloridas.

Élitros quadrangulares, mais longos do que largos, pouco mais estreitos para o ápice; derme áspera, opaca; escamas esparsas, curtas, pretas; estrias pouco pronunciadas; na linha sutural, pouco além do escudo, uma forte giba preta escamosa, formada nos intervalos suturais; outra giba menor, formando dente triangular, também na sutura, pouco além da metade dos élitros; margem sutural entre as duas gibas e além da segunda giba até o ápice, com escamas longas brancas, formando uma faixa alva, interrompida pela giba menor; perto da base dos élitros o intervalo 4 com carena pronunciada; intervalos 7 e 8 unidos na base, formando um ombro caloso arredondado; ângulo obtuso externo apical formado pela dilatação lamelada do nono intervalo.

Coxas dianteiras separadas por um intervalo. Metasterno com longos pêlos brancos, decumbentes.

Compr. 3 mm., largura 2 mm.

Descrito sobre 1 espécimen, recebido de Felipe Justus Júnior, Ponta Grossa, Paraná.

Holótipo na coleção do autor.

A espécie se caracteriza pelas duas gibas no alinhamento sutural, pela faixa sutural branca na segunda metade dos élitros, e pelo escudo distintamente amarelo-escamoso.

Pelas coxas dianteiras um tanto separadas a espécie poderia entrar no gênero *Meroprion*; as gibosidades nos élitros justificam a sua colocação no presente gênero.

Gênero *Meroprion* Mshl. 1936

O Catálogo de W. Junk, 1936, registra para este gênero 3 espécies. Posteriormente adicionamos *M. perseae* e *M. anonica*, e Voss descreveu *M. brunotricollis*, espécie baiana.

A nossa espécie *Prionomerus sexgibbosus* Bond., submetida ao exame de E. Voss, foi considerada por este como também pertencente a este gênero, passando a ser *Meroprion sexgibbosus* Bond.

De *Meroprion perseae* Bond. recebemos 7 exemplares de Fe-

lipe Justus Júnior, criados em folhas de abacateiro (*Persea gratissima*) em Ponta Grossa, Paraná.

De *Meroprion anonicola* Bond. recebemos da mesma procedência, e de Anton Maller, S. Catarina, uma dúzia de exemplares, criados em folhas de "araticum do campo", Anonácea.

Juntamos mais duas espécies que julgamos novas.

Meroprion lauracei, n. sp.

De um preto carregado; antenas e tarsos amarelos, ápice dos fêmures e do rostro vermelhos. Fortemente esculturado. Cabeça não estreitada atrás dos olhos; olhos contíguos, pretos, com reflexo avermelhado. Pronoto trapezoidal, fortemente áspero. Élitros distintamente convexos, arqueados lateralmente. Uma giba nítida no intervalo sutural logo após o escudo que é longo e forte; base do 4º intervalo elevada em forma de crista. Na base dos intervalos 7 e 8 há uma forte carena, formando um ombro pouco projetado lateralmente; estrias nos élitros fundas, covinhadas; intervalos opacos. Margem dos élitros na metade distal finamente serrilhada. Gibosidade no dorso com pilosidade amarelada na face posterior. Coxas dianteiras afastadas quase pela largura do seu diâmetro, intervalo plano. Tíbias dianteiras na margem convexa externa com um dente vertical no meio do seu comprimento.

Compr. 2,5 mm., largura 2 mm.

Descrito sobre 4 espécimens, colecionadas por autor em Dias Dávila, Baía em 10-10-1940 em folhas de Laurácea não identificada.

Cotipos na coleção do autor.

Meroprion justus, n. sp.

Preto, patas vermelho-escuras, tarsos amarelo-avermelhados. Cabeça estreitada atrás dos olhos; olhos pretos, contíguos. Antenas medianas. Pronoto subcônico, densamente covinhado. Élitros fortemente estriados, sem gibosidades. Base dos intervalos 6, 7 e 8 unida, formando uma carena obtusa no ombro; lados levemente arqueados, margem latero-posterior serrilhada. Pilosidade curta, esparsa, grisalha no dorso.

Coxas dianteiras pouco afastadas; tíbias dianteiras com dente perpendicular no lado externo convexo, no meio do comprimento.

Compr. 3 mm., largura 2,2 mm.

Descrito sobre 1 espécimen, recebido sob nº 1927 de Felipe Justus Júnior, colhido em Setembro de 1945 em Ponta Grossa, Paraná.

Holótipo na coleção do autor.

A espécie caracteriza-se pelo colorido das patas, ausência de gibosidades nos élitros e dente nas tíbias dianteiras.

Considerações sobre o gênero. — Destacando o gênero *Prionopus*, atual *Meroprion*, tomou E. Voss como característico essencial genérico o afastamento das coxas dianteiras e a ausência de gibosidades nos élitros. As nossas espécies *Meroprion anonica* e *M. sexgibbosus* e a nova espécie *M. lauracei* possuem gibos nos élitros. Resta apenas como diferença entre *Prionomerus* e *Meroprion* o afastamento de coxas dianteiras neste último gênero.

Criam-se as espécies de *Meroprion* em folhas de famílias botânicas diversas, já sendo registrados em Lauráceas, Anonáceas e Polygonáceas.

Gênero *Scymnoplastophilus* Voss, 1934

O gênero difere dos dois precedentes pela cabeça cônica, não estreitada, élitros glabros, com espinhos, olhos separados na fronte.

As quatro espécies, anteriormente registradas nos Catálogos, incorporamos, em nossos escritos anteriores, *S. marshalli* Bond., e *S. guareae* Bond.; ambas foram mais tarde examinadas e confirmadas por E. Voss. A nossa espécie *Prionomerus gudimiri* Bond., após o exame, foi transferida por Voss para este gênero, passando a figurar como *Scymnoplastophilus gudimiri* Bond.

As espécies que conhecemos, são de cor amarela; todas criam-se em folhas de Meliáceas, fazendo a metamorfose dentro da folha, como é o caso de todos os *Prionomerinae*.

Passamos a descrever uma espécie preta.

Scymnoplastophilus bicolor, n. sp.

Profundamente preto, luzente, antenas, abdômen e os dois pares traseiros de patas amarelo-claros; base do fêmur e ápice das tíbias nas patas dianteiras avermelhados; tarsos amarelos.

Cabeça sem estreitamento postocular, olhos pouco salientes, subconatos, separados na frente apenas por uma linha estreita. Rostro do comprimento do pronoto, luzente, com covinhas esparsas na base; antenas medianas.

Pronoto com os lados subretos e convergentes nos dois terços basais, constricto em seguida formando um colo tubular; no dorso notam-se dois pares de saliências pouco elevadas, largas; densamente covinhado, com pilosidade grisalha esparsa.

Élitros subquadrados, lados subparalelos, pouco alargados para o ápice; estrias pronunciadas, covinhadas; intervalos salientes, arredondados; no primeiro e segundo intervalos suturais, na metade do dorso há um forte espinho cônico, grosso na base, terminando em ponta fina, um de cada lado da sutura; no ângulo externo apical dos élitros há outro espinho forte, dirigido lateralmente, um tanto recurvado para cima; ombros obtusos subretangulares, não proeminentes lateralmente; derme luzente; pilosidade grisalha, pouco uniforme, esparsa, decumbente.

Tíbias dianteiras com um espinho na metade externa convexa. Compr. 5 mm., largura 2,3 mm.

Descrito sobre dois espécimens, recebidos de Anton Maller, Corupá, Santa Catarina.

Cotipos na coleção do autor.

Difere das demais espécies pelo colorido, olhos subcontíguos e forma e distribuição das excrescências nos élitros.

Sobre a Biologia da Subfamília Tachygoninae Klíma.

A subfamília abrange 34 espécies distribuídas em 4 gêneros, conforme Coleopterorum Catalogus, Pars 146, 1936. Dois gêneros, com o total de 31 espécies, são do continente americano. A este número, posteriormente, Marshall, Hustache e Oscar Monte adicionaram várias espécies novas.

As espécies recém-descritas por Marshall e Hustache, foram por nós coletadas ou criadas de modo que podemos fazer comunicações sobre a biologia deste grupo.

Os insetos têm voo rápido e não é fácil de apanhá-los, razão por que são raros nas coleções. É mais fácil criá-los de folhas parasitadas.

A fêmea deposita os ovos na página superior da folha de plantas Dicotiledôneas. As larvas criam-se dentro da folha, comendo o parênquima, protegidas pelas epidermes foliares. Completado o crescimento, a larva, dentro da folha, constrói um casulo chato, discoidal e nele se transforma em ninfa e adulto; este sai, fazendo um orifício na página superior da folha. Várias famílias botânicas são exploradas por *Tachygonus*. Mencionamos a biologia de algumas espécies que estudamos.

Tachygonus bondari Mshl. cria-se em folhas grossas de uma Mirtácea não identificada; Água Preta, Baía.

Tachygonus bauhiniae Hust. cria-se em folhas de *Bauhinia integrerrima*, Leguminosa. Água Preta, Baía.

Tachygonus rugosipennis Hust. cria-se em folhas de "imbaúba" *Cecropia* sp., Morácea; Água Preta, Baía.

E' provável que todos os *Tachygonus* tenham os mesmos hábitos biológicos.

Não obstante as diferenças morfológicas, três subfamílias de Curculionídeos têm a mesma biologia, evoluindo dentro das folhas de Dicotiledôneas. São: os Prionomerinae, os Camarotinae e os Tachygoninae.

Subfamília Ceratopinae Klima.

Desta subfamília *Lacordaire* conheceu apenas três gêneros que se caracterizam pela seguinte chave:

- I. Escrobos rostrais confluentes para o ápice.
 Dente triangular nas coxas dianteiras..... *Chelotonyx*
 Dente triangular em todas as coxas..... *Ceratopus*
- II. Escrobos rostrais separados no ápice. Dente triangular em todas as coxas..... *Acanthobrachium*

Conforme o *Coleopterorum Catalogus* de W. Junk, pars. 145, por A. Klima, 1932, a subfamília abrange 22 espécies, distribuídas em 8 gêneros. Do Brasil foram registradas três espécies, pertencentes a três gêneros diferentes.

Obtivemos, na Baía, diversas espécies novas, atribuídas por Marshall, Hustache e Voss umas ao gênero *Ceratopus* Schoenh. 1843 e outras a *Acanthobrachium* Bohem. 1859.

Segundo *Lacordaire*, a diferença essencial entre esses dois gêneros reside nos escrobos antenais do rostro, confluentes no ápice no gênero *Ceratopus* e separados em *Acanthobrachium*. No primeiro gênero as antenas são medianas, e no segundo terminais.

A. Klima fundiu os dois gêneros dando primazia a *Ceratopus*, como mais antigo; não obstante Hustache e Voss, posteriormente, ainda consideram válido *Acanthobrachium*, descrevendo novas espécies deste gênero.

Não sabemos quais foram as razões que levaram Klima a fundir os dois gêneros. Possuímos, porém, numeroso material que parece confirmar o ponto de vista de Klima. A diagnose

genérica de *Lacordaire* para *Ceratopus* corresponde a fêmeas, e de *Acanthobrachium* a machos da mesma espécie.

Gênero *Ceratopus* Schoenh.

O característico essencial deste gênero são os fêmures nos três pares de patas fortemente dilatados, formando um robusto dente triangular, não serrilhado no ápice.

O gênero foi baseado no genótipo *Ceratopus bisignatus* Sch., 1843, originário do México e, conforme Lacordaire, "de taille médiocre, entièrement revêtu d'une livrée grisâtre, avec une petite tache rousse, oblongue sur chacune des élytres, a quelque distance de leur extrémité".

Possuímos uma espécie, machos e fêmeas, que corresponde à descrição sumária acima, exemplares fornecidos por J. F. Zikán, Rio, provenientes do Itatiaia, e outros por Anton Maller, Corupá, Estado de S. Catarina, que estamos inclinados a identificar com *bisignatus*, não obstante a distância geográfica.

O gênero *Acanthobrachium* foi baseado na espécie *A. crasipes* Bohem., 1859. O característico da espécie, segundo Lacordaire, é: "de taille médiocre, d'un brun noirâtre uniforme et revêtu de poils grisâtres, couchés et très-fins; ses élytres présentent des rengées régulières, mais peu apparentes; de très petits points enfoncés. Elle est du Brésil, aux environs de Rio de Janeiro".

Esta descrição corresponde igualmente à espécie acima, *C. bisignatus*, tomando-se em consideração as diferenças genéricas nos escrobos e a situação das antenas.

Ultimamente Hustache descreveu *Acanthobrachium helicostylisae* e *A. fici*, e Voss denominou *Acanthobrachium bondari*, todos os exemplares criados e fornecidos por nós.

Em vista das considerações acima aduzidas, transfiro estas espécies para o gênero *Ceratopus*.

Ceratopus helicostylisae Hust., 1940. As larvas criam-se na polpa de frutos maduros da Morácea *Helicostylis poeppigiana* Trec., conhecida no sul baiano como "amora vermelha". Quando o fruto cai no chão, a larva emigra para a terra, onde completa a metamorfose. Criado pelo autor, Água Preta, atual Uruçuca, Est. da Baía.

Ceratopus fici Hust. 1940. As larvas criam-se em polpa de frutos maduros de "gameleira branca", Morácea indígena do gênero *Ficus* sp.; quando os frutos caem, as larvas emigram para a

terra, onde completam a evolução. Criado pelo autor, Água Preta, Baía.

Ceratopus bondari Voss in litt. Criam-se as larvas em frutos maduros de "gameleira preta", *Ficus* sp. Quando os frutos caem, as larvas emigram e na terra completam a metamorfose. Água Preta, Baía. Criado pelo autor.

Descreveu Hustache ainda *Acanthobrachium gounellei* Hust. 1940. Desconhecemos a espécie, porém julgamos que deve também passar para o gênero *Ceratopus*.

Abaixo descrevemos uma espécie nova, que também criamos de frutos de uma Morácea.

A julgar pelas quatro espécies cuja biologia conhecemos, é provável que todos os *Ceratopus* se criam em frutos maduros de Moráceas, alimentando-se as larvas da polpa, emigrando depois para a terra, onde completam a evolução, variando as espécies de *Ceratopus* conforme as espécies botânicas. Investigando melhor a nossa flora, poderemos descobrir ainda numerosas espécies deste gênero de Ceratopinae.

Redescrevemos a espécie que consideramos como *bisignatus* e adicionamos uma espécie nova.

Ceratopus bisignatus Schoenh.

Derme castanho-escuro-avermelhada; cabeça, protórax, meso e metasterno lateralmente e os dois terços basais dos élitros cobertos de escaminhas minúsculas, densas, brancas, dando aspecto geral grisalho. No terço apical dos élitros há duas máculas laterais ovais luzentes castanho-escuras, limitadas por escaminhas esbranquiçadas menos densas do que nos dois terços basais dos élitros. Nos intervalos 5 e 6, perto do ápice, há uma mácula circular de escamas densas, brancas; ápice dos élitros branco-escamosa, porém menos densa do que as máculas adjacentes; estrias nos élitros finas, superficiais, marcadas de pontilhação pouco funda. Rostro, antenas, tíbias e tarsos amarelo-arruivados.

Fêmea. Rostro mais longo do que o pronoto, fino, cilíndrico, levemente arqueado; antenas medianas; escrobos em declive brando, convergindo num só sulco inferiormente perto da cabeça; escapo longo, fino; funículo de 7 segmentos; o 1º mais grosso e longo, cônico, 2º pouco menor, os restantes curtos, transversais; clava cônica, em comprimento igual aos últimos cinco segmentos do funículo.

Protórax com lados paralelos nos dois terços basais, convergentes em seguida, sem formar colo; lóbulos oculares pouco salientes; linha mediana pouco marcada numa elevação pouco nítida; lóbulo basal largo, curto. Élitros oblongo-ovoidais. Fêmures I-III fortemente engrossados na metade distal e com dilatação formando um forte dente triangular no lado interno.

Macho: difere pelo rostro mais grosso, subquadrangular na metade basal, mais curto, do comprimento do pronoto. Antenas no quarto apical, escrobos rostrais em declive, separados inferiormente por uma estreita quilha, sem convergir em sulco comum.

Compr. de 7 a 8 mm., largura de 3,2 a 4 mm.

Descrito sobre 5 espécimens, dos quais um macho e uma fêmea recebidos de A. Maller, Corupá, S. Catarina, e 1 macho e 2 fêmeas recebidos de J. F. Zikan sob o nº 188, coletados em 9-7-1934 em Itatiaia, Estado do Rio de Janeiro. Exemplares na coleção do autor.

Ceratopus sampsoni, n. sp.

Uniformemente amarelo-avermelhado, subglabro; pilosidade branca, esparsa na submargem do pronoto em duas faixas longitudinais, mal definidas; duas máculas, mal definidas, na metade distal dos élitros; no resto notam-se escaminhas minúsculas, esparsas, concolores com a derme.

Cabeça finamente pontilhada, com escamas finas curtas esparsas brancas. Pronoto finissimamente pontilhado, luzente. Élitros com estrias pouco fundas, pontilhadas. Face ventral com escamas uniformes curtas esparsas brancas. Patas igualmente escamosas, porém escaminhas mais longas e finas.

Compr. 4,5 a 6 mm., largura de 2 a 3 mm.

Descrito sobre 2 espécimens, ambos machos, criados pelo autor de frutos de gameleira *Ficus* sp., arredores da Capital da Baía.

Cotipos na coleção do autor.

Quatro exemplares desta espécie, sob o nº 1567 foram remetidos em Março de 1930 para identificação ao Imperial Institute of Entomology, London. Veio a resposta: "*Ceratopus* sp", ficando os insetos em Londres.

Dedicamos a espécie ao colega W. W. Sampson, Richmond, Califórnia, como retribuição pelo gênero *Bondaria* criado para Aleyrodídeos mexicanos.

Gênero *Chelotonyx* Waterh. 1863

Segundo Lacordaire, o gênero tem os seguintes caracteres: "Rostre long, cylindrique; ses scrobes commençant vers son quart antérieur, obliques et connivent en arrière. Antennes assez longues; scape en massue allongée au bout; funicule á articles 1-2 allongés, subégaux, obconiques, 3 de même forme, très court, 4-7 subarrondis, serrés; massue oblongue ovale, tomenteuse, acuminée, articulée. Yeux grands, déprimés, oblongo ovales transversaux. Prothorax transversal, presque droit sur les côtés, brusquement rétréci et tronqué en avant, avec son bord antéro-inférieur fortement échancré et ses lobes oculaires faibles, bisinués à sa base. Ecusson oblong. Elytres médiocrement convexes, brièvement et régulièrement ovales, à peine plus larges que le prothorax et chacune un peu obliquement coupée à sa base, avec les épaules obtuses. Pattes assez longues et assez robustes; cuisses antérieures fortement en massue, armées d'une très forte dent triangulaire, crenelée en avant, les autre moins robustes et inermes; jambes comprimées, arquées à leur base; les antérieures élargies dans leur milieux inerme, onguiculées à leur extrémité, les autres droites et inermes; tarses médiocres, á articles 1 peu allongé, 3 médiocrement large; crochets fortement arqués, profondement bifides. 2e. segment abdominal aussi long que 2-3 réunis, séparé du 1er par une suture droite; saillie intercoxale large, tronquée en avant. Corps ovale, pubescent".

Na separação dos gêneros dos "Ceratopides", segregou Lacordaire *Chelotonyx* por possuir dente triangular apenas nas coxas dianteiras, tendo, como *Ceratopus*, escrobos rostrais confluentes.

Possuímos uma espécie que se enquadra perfeitamente no gênero *Chelotonyx*. Remetida para E. Voss, Berlin-Dahlem, recebemos um cotipo com etiqueta *Prionobrachium subcallosum* Voss. Desconhecemos o gênero *Prionobrachium*. Encontramos a menção dessa designação apenas na obra de Voss, quando pretendia associar este gênero aos *Prionomerinae*.

Passamos, portanto, a considerar *Prionobrachium subcallosum* Voss como *Chelotonyx subcallosum* (Voss) e daremos a descrição sumária da espécie.

Chelotonyx subcallosum (Voss)

Derme amarelo-avermelhada até amarelo-castanha; olhos e mandíbulas pretos; escamas curtas amarelo-claras esparsas em todo o corpo, formando alinhamento difuso na linha mediana do pronoto e lateralmente na submargem na metade basal; na base dos élitros, no terceiro intervalo, há uma mácula de escamas densas amarelo-claras, e máculas dispersas arredondadas se encontram na metade distal dos élitros.

Fêmea. Cabeça fina e densamente pontilhada, com escamas esparsas amarelas, olhos pretos, distanciados pela largura do rosto. Rostro cilíndrico, carenado e piloso nos dois terços basais, liso no terço apical mais achatado, pouco arqueado, de um terço mais longo do que o pronoto. Antenas na base do terço apical, finas; escapo mais longo do que o funículo e clava juntos; clava obcônica, pequena, de um terço do comprimento do funículo; escrobos rostrais oblíquos, confluentes no ápice, perto dos olhos, porém sem formar sulco comum.

Pronoto subparalelo arqueado nos lados nos dois terços basais, em seguida estreitado, formando um colo pouco destacado; densa e finamente pontilhado, luzente, base bisinuada, lóbulo estreito e curto.

Élitros de configuração oblongo-elipsoidal, fortemente estriados, estrias pontilhadas; intervalos 3 e 5 perto da base um tanto mais proeminentes, sem formar carenas nítidas.

Patas dianteiras muito mais fortes do que os dois pares traseiros, fêmures fortemente dilatados no meio, formando um dente largo triangular serrilhado, como em *Prionomerus*; tíbias fortemente arqueadas, compressas, inermes; unhas dos tarsos pequenas, unidas na base. Patas medianas e traseiras mais fracas e curtas, fêmures pouco engrossados e inermes.

Macho: difere pelo rostro mais grosso e carenado até o ápice, escamoso em todo o comprimento. Antenas preapicais, escrobos oblíquos, imperfeitamente confluentes no ápice.

Compr. de 4,5 a 6 mm., largura de 2,2 a 2,5 mm.

Redescrito sobre uma fêmea etiquetada por Voss como "Typus" e uma fêmea e um macho da coleção do autor.

Criamos a espécie de frutos de "virozinho" *Guararibea penduliflora* Schum., família das Bombáceas, em Água Preta, Baía. As larvas criam-se em frutos maduros, comendo a polpa, e quan-

do estes caem no chão, as larvas emigram para a terra, onde completam a metamorfose. A biologia, portanto, é análoga à de *Ceratopus*, explorando porém o gênero *Chelotonyx* a família das Bombáceas. Investigando as nossas *Guararibeas*, poder-se-ão obter outras espécies do mesmo gênero.

Subfamília Magdalinae Schenk.

S. Schenkling, autor da subfamília, considera os Magdalinae e Laemosaccinae como duas subfamílias independentes. A. Hustache, na revisão das espécies sul-americanas, por razões puramente morfológicas, incluiu os Laemosaccinae, com o gênero único *Laemosaccus*, na subfamília Magdalinae. Aceitamos este ponto de vista.

Reunidas as duas subfamílias, o total das espécies figuradas nos últimos catálogos é de 203, distribuídas em 6 gêneros. São Curculionídeos primitivos, distribuídos em todos os continentes.

Na revisão das espécies sul-americanas Hustache criou 4 gêneros novos. Os Magdalinae ficam distribuídos em três tribos: Magdalini, Cnemidophorini e Laemosaccini.

Da fauna brasileira possuímos uma dúzia de espécies pertencentes às duas últimas tribos. Desse conjunto podemos concluir que, se não fossem as coxas dianteiras um tanto afastadas, a tribo Laemosaccini não teria razão de existir, tal é a sua aproximação aos Cnemidophorini pelas antenas mal acotoveladas e o escrobo rostral primitivo nos machos.

Entre as nossas espécies, identificadas por Hustache, citaremos:

Apocnemidophorus jacobii Hust., cujos exemplares recebemos do Museu do Paraná sob o nº 22.

Apocnemidophorus carnifex Gyll., recebidos do Museu do Paraná sob o nº 45, coletados em Curitiba em 1937 por um Padre Claretiano.

Laemosaccus aureus Hust., exemplares recebidos de A. Malier, S. Catarina e Dr. Nick, S. Paulo, sob o nº 68, coletados em Morumbi, S. Paulo em 26-3-1944.

Adicionamos duas espécies que Hustache considera novas, encarregando-nos da descrição.

Apocnemidophorus hustachei, n. sp.

Colorido geral castanho-avermelhado, rostro e pronoto pouco mais escuros, umbões preapicais nos élitros pretos, antenas ruivas; glabro; escamas douradas formam máculas lateralmente na cabeça e no pescoço, na metade dianteira dos flancos do protórax, uma orla em roda do escudo; há também máculas nos epímeros meso e metatorácicos e na periferia do abdômen.

Macho. Cabeça arredondado-subcônica; olhos próximos na frente, pretos, com reflexo amarelado; rostro cilíndrico, forte, subreto, do comprimento do pronoto, densa e ásperamente esculpado; antenas no terço apical, subcotoveladas; escrobo em rápido declive, curto, abrigando apenas a base do escapo; clava obcônica, do comprimento do funículo.

Pronoto convexo, inchado, pouco mais largo do que os élitros na base, levemente afundado na linha mediana; esculturação tessellada com pequenas saliências em cristas lunares.

Élitros paralelos, sem excrescências, lisos, estrias regulares, finas, pontilhadas; uma mácula preta nos umbões preapicais, e o esboço de mácula preta nos ombros. Pigídio pequeno, nitidamente de dois segmentos, o apical finamente estriado horizontalmente.

Coxas dianteiras próximas, fêmures e tíbias arqueados, compressos e com dente no meio do lado interno.

Fêmea: difere pelo rostro mais cilíndrico, liso, pouco covinhado; escrobo menos oblíquo, prolongado lateralmente até perto do olho.

Compr. de 7 a 8 mm., largura de 2,5 a 3,5 mm.

Descrito sobre 4 espécimens, 3 machos e 1 fêmea, recebidos de Felipe Justus Júnior sob nº 1269, coletados em Ponta Grossa, Paraná e de Anton Maller, Corupá, S. Catarina. Este último informa que a espécie vive em "Bromeliácea do brejo" que julgamos ser uma Amarilidácea do gênero *Crinum*, a julgar pelo desenho que Maller mandou.

Cotipos na coleção do autor.

Submetida a espécie a A. Hustache, este a considerou nova e incumbiu-nos de descrevê-la. Dedicamos a espécie a Hustache, em reconhecimento pelo valioso auxílio que nos prestou no estudo dos Curculionídeos brasileiros.

Laemosaccus drewsi, n. sp.

Preto luzente, funículo e clava antenal amarelo-avermelhados, tarsos amarelo-pardacentos. Pilosidade amarelo-dourada esparsa na metade dianteira dos flancos do protórax; uma mácula amarelo-dourada ladeando o escudo; os três penúltimos anéis abdominais com escamas curtas, esparsas, douradas.

Cabeça finamente pontilhada; olhos distanciados na frente por cerca da largura do rostro; fronte com afundamento largo e razo; rostro subreto, cilíndrico, luzente, covinhado, mais curto do que o pronoto. Antenas medianas, subcotoveladas; escrobo oblíquo, atingindo o olho.

Pronoto pouco mais estreito do que os élitros; uma carena fina mediana na metade dianteira, alargada no meio de dorso e continuada até a base mais larga, ladeada por um afundamento semicircular na metade basal do pronoto. Densamente esculturado com saliências que na metade dianteira se agrupam em carenas sinuosas, interruptas, alinhadas em sentido divergente para a frente e para os flancos.

Élitros ondulados, profundamente estriados; intervalo 3 largo na base, embutido no pronoto, saliente em seguida formando carena baixa até perto do ápice; intervalo 5 também mais largo na base e mais saliente, ondulado. Metade distal dos élitros ondulada em sentido longitudinal, afundada na sutura entre os intervalos 3 e entre 3 e 5. Ápice com umbões largos, obtusamente arredondados.

Pigídio grande, de um segmento, grossamente covinhado; uma carena alta e estreita na linha mediana, formando um dente triangular no meio do pigídio, não atingindo o ápice; bordo do pigídio com carena lisa, saliente, uniforme.

Coxas dianteiras distanciadas; fêmures e tíbias compressos, arqueados; fêmures com dente no meio da face interna, tíbias inermes.

Compr. 8 mm., largura 4 mm.

Descrito sobre 1 espécimen, provavelmente fêmea, recebido de J. F. Zikán, coletado em 2-1-1918 na Fazenda Campos, Virgínia, Estado de Minas.

Holótipo na coleção do autor.

O exemplar foi submetido a *Hustache* e este o considerou espécie nova, incumbindo-nos da descrição.

Dedicamos a espécie ao colega E. A. D r e w s, Richmond, Califórnia, em reconhecimento pela gentileza do gênero *Bondaria*, criado para Aleyrodidae mexicanos.

Algumas Correções e Sinonímias.

Terminada a guerra, entramos de novo em correspondência com A. H u s t a c h e, França, especialista em Curculionídeos. Remetemos ao mesmo muitos cotipos de espécies descritas por nós durante a guerra e publicadas em nossas Notas Entomológicas. Apressamo-nos a publicar as seguintes correções.

1) O nosso gênero *Mallerus* é sinônimo de *Trichodocerus* Chevr. (Ann. Soc. Ent. Franc. 5, IX, 1879); a nossa espécie *antiquus* passará a ser *Trichodocerus antiquus* (Bond.). Uma espécie deste gênero, que recebemos de Plaumann, S. Catarina, e remetemos a Hustache sob o nº 4179, foi identificada como *Trichodocerus spinolae* Chevr., descrita originariamente da América Central.

O gênero *Trichodocerus* acha-se nos Catálogos encabeçando a subfamília Cryptorrhynchinae, como grupo aberrante. Pleiteamos a aproximação do gênero da subfamília Barinae, tribo Pantotelini pelos caracteres do rostro, olhos, antenas e especialmente pelos epímeros mesotorácicos um tanto ascendentes, como se verifica em *Trichodocerus antiquus* (Bond.). E' um gênero de transição entre as duas subfamílias.

2) *Bignonibaris mutilatus* Bond. é sinônimo de *Fryella quadrituberculata* Hust., descrito em 1929 sobre um exemplar do British Museum. Em nossas coleções possuímos mais de uma centena dessa singular espécie.

Lamentamos a sinonímia; não deixa de ter valor a divulgação da biologia.

3) O nosso gênero *Cavibaris* é idêntico ao novo gênero *Scleronychius* Hust. e a nossa espécie *brasiliensis* é idêntica a *ebenus* Hust., gênero e espécie descritas por Hustache em 1941; o manuscrito deve estar no Museu Nacional do Rio de Janeiro; parece que ainda não foi publicado. Neste caso, a nossa denominação prevalecerá pela prioridade da divulgação (Notas Entomológicas da Baía XVII, Agosto de 1946).

Bibliografia.

- Bondar, Gregório, Notas Biológicas sobre o gênero *Prionomerus*. — Rev. Ent. Vol. 7, fasc. 1, 1937, Rio de Janeiro.
- Observações sobre Curculionídeos enroladores de folhas. — Rev. Ent. Vol. 7, fasc. 2-3, 1937.
- Notas Entomológicas da Baía, II. — Rev. Ent. Vol. 8, fasc. 1-2, 1938.
- Notas Entom. da Baía, IV. — Rev. Ent. Vol. 10, fasc. 1, 1939.
- Notas Ent. da Baía, XVII. — Rev. Ent. 1946.
- Dalla Torre, von e E. Voss, Coleopt. Catalogus, W. Junk, Pars 158, Gravenhage, 1937.
- Hustache, A., Curculionides de la Républ. Argentine. — An. Mus. Nac. Hist. Nat. XXXIV, Buenos Aires, 1926.
- Magdalinae (Col. Curc.) de l'Amérique Meridional. — Ann. Mag. Nat. Hist. Sér. 10, v. XIX, 1937.
- Curculionides nouveaux du Brésil. — Rev. Ent. V. II, fasc. 3, 1940, Rio.
- Klima, A., Coleopt. Catalogus, W. Junk, Pars 145 e 146, 1935 e 1936, Gravenhage.
- Lacordaire, Th., Histoire Naturelle der Insectes. Genera des Coléoptères. T. 6, Paris, 1863.
- Pascoe, Ann. Mag. Nat. Hist. 5, XVII, 1886.
- Sampson, W. W. e E. A. Drews, A Review of the Aleyrodidae of Mexico. — Ann. Soc. Nac. Cien. Biol. Mexico, 1941.
- Schenkling, S., Coleop. Catal. W. Junk, Pars 139, 141, 144 e 150; 1934; 1935 e 1936.
- Schoenherr, Gen. et Spec. Curc. VIII, 1845.
- Voss, E., Monographie der Rhynchitinen-Tribus Rhinomacerini und Rhinorhynchini. — Entom. Blätter, 27, 1931, Heft 4.
- Monographie der Rhynchitinen Tribus Auletini, III. Teil. — Stettiner Ent. Zeitung, 94, 1933, 95, 1934, 97, 1936 e 98, 1937.
- Vorstudie zur Tribus Prionomerini (Col. Curc.). — Entom. Blätt., 30, 1934, Heft 4.
- Über einen blattminierenden tropischen Rüssler. — Arb. Phys. Angew. Ent. Berlin-Dahlem, Band 1, 1934, N. 4.
- Über Arten und Gattungen der Unterfamilien Belinae, Rhynchitinae und Attelabinae (Curc. Col.). — Stettin. Ent. Zeitung, 98, 1937.
- Coleopter. Catal. W. Junk, Pars 167, 1939.

Notas Sobre Flebotómidos Americanos (Diptera, Psychod.).

Por el Dr. Alfonso D a m p f, Laboratorio Entomológico "Leland Ossian Howard" de la Escuela Nacional de Ciencias Biológicas, (Instituto Politécnico Nacional), México, D. F.

(Con 16 figuras)

Durante mi estancia en el Museo Nacional de Washington, D. C., en el año de 1936, como becado de la Fundación Guggenheim, tuve ocasión de estudiar los tipos de flebotómidos, depositados en aquella institución científica. En estas notas deseo presentar los resultados de mis estudios y agregar observaciones sobre la morfología y sistemática de otros representantes de la misma familia de dípteros, según se presente la oportunidad.

La publicación de estas pesquisas se retardó por varios motivos, entre los cuales el principal ha sido la honda preocupación que comparten hoy día sin duda todos los hombres, para quienes la Humanidad es más que una palabra: Hacía donde marcha el mundo con esta interminable serie de guerras y destrucción de los valores morales? Nuestra cultura es una unidad; si en su seno suceden semejantes horrores como la deliberada aniquilación de ciudades enteras o la condenación de millones de seres inocentes a la muerte por el hambre, como actualmente sucede en China y Europa, — es inevitable la conclusión de que esta supuesta cultura ya no existe más.

Tiene entonces objeto cultivar el pequeño campo de la propia especialidad, mientras la mitad de la Humanidad está agonizando?

México, D. F., mayo de 1947.

I. Qué es el *Phlebotomus atroclavatus* Knab?
(Figs. 1-7).

La especie fué descrita por F r e d e r i c k K n a b en el mes de noviembre del año de 1913, basándose en dos hembras y un macho secos y un macho y una hembra convertidos en preparaciones fijas a base de bálsamo de Canadá. Los cinco ejemplares fueron colectados por F. M. U r i c h en el mes de agosto de 1913 en "Gaspæe Island, Trinidad, B. I." Según el colector se trata de una especie que vive asociada con el hombre, lo que puede significar que es una especie antropófila o que puede atacar al hombre. Una de las hembras que sirvió para la descripción, tenía el abdomen repleto de sangre. Acompaña la descripción un dibujo muy primitivo del hipopégio masculino. No se dan detalles acerca de la hembra que permitirían reconocerla,

lo que es equivalente a la declaración de que la hembra no está descrita.

Los autores que mencionan la especie *P. atroclavatus* en varias publicaciones, siempre se refieren a la descripción original, sin haber tenido en sus manos material nuevo. França y Parrot (1920) lo colocan en el subgénero *Sergentomyia* França y Parrot (tipo *P. minutus* Rondani 1843), entidad que los mismos autores, por razones que no revelan, sustituyeron en el año siguiente por el subgénero *Prophlebotomus* França y Parrot 1921 (tipo *P. minutus* Rondani 1843). Dyar hace en el año de 1926 unas correcciones a la descripción de Knab y declara en el año de 1929 el *Phlebotomus tejerae* Larrousse 1921 como sinónimo de *P. atroclavatus*, lo que fué objetado por Galliard (1934). Coutinho y Barretto (1940) comparan la especie con su *P. pascalei* de Brazil, y Mangabeira (1942), discutiendo su posición sistemática entre los flebotómidos americanos, le asigna un lugar no correcto, debido a la insuficiente descripción de Knab.

A esta misma falta de datos precisos se debe que Floch y Abonnenc, en el año de 1945, describieran la misma especie bajo el nombre de *P. guadeloupensis* n. sp., basándose en numerosos ejemplares, procedentes de la isla de Guadalupe, en las Antillas francesas y colectados en hoquedades de árboles. Entre su material se encontraron también hembras, cuyos caracteres los autores presentan en su acostumbrada manera muy exacta, acompañados de excelentes dibujos, impresos infortunadamente en muy mal papel. Este hallazgo nos da la posibilidad de discutir más adelante la supuesta identidad de *P. atroclavatus* Knab 1913 y de *P. tejerae* Larrousse 1921.

Descripción del Tipo.

En el Museo Nacional de Washington, D. C., se encuentran cinco preparaciones microscópicas marcadas con el nombre de *P. atroclavatus*, representando tres machos, una hembra y una ala. Uno de estos machos, por la disposición de las partes del hipopigio, es sin duda alguna el ejemplar que sirvió a Knab para su dibujo. La etiqueta dice: "Gaspree Island, Trinidad, 3.9.13, F. W. Urich". Lo designé, de acuerdo con las autoridades del Museo, como holotipo que recibió el número 16580. El segundo macho representa una especie diferente, cerca o idéntica con *Phlebotomus cayennensis* Floch & Abonnenc 1941, y procede

tambien de Trinidad (No. 2247). El tercero, colectado por Nuñez Tovar, Oct. 1, 1926, es aparentemente idéntico con el anterior, en lo que se refiere a la especie, pero no pertenece al material original de Knab y tampoco viene de Trinidad, donde Nuñez Tovar, según se sabe, no ha efectuado capturas. Supongo que es de Venezuela. Entre las dos preparaciones restantes la hembra ha sido preparado sin anterior tratamiento con sosa cáustica, lo que hace imposible ver los detalles necesarios y hacer su clasificación. La quinta preparación es el ala de una hembra que localicé entre los llamados paratipos de Knab, no preparados, y pude darme cuenta de que se trata de una especie con 16 dientes bucofaringeos y una faringe dotada de espinas que aparentemente nada tiene que ver con *P. atroclavatus*. No me atrevo declarar si esta hembra pertenece a la misma especie que los dos machos de la misma serie, afines o idénticos con *P. cayennensis*, o a una especie aún no descrita. En una nota posterior doy más datos sobre esta forma.

La figura 1 representa el hipopigio del holotipo en la misma posición como lo dibuja Knab, solo omitiendo unas partes. El gonópodo izquierdo, visto en su totalidad (*a*, *b*), enseña su lado interior; del gonópodo derecho tenemos solo la parte distal (*b'*) visto de lado exterior, además el proceso mediano en posición torcida (*c*), el proceso inferior (*e*), el cercus (*f*) y los filamentos genitales (*g*) con la válvula genital (*d*). Comparando los dos dibujos, de Knab y el presente, notamos desde luego que Knab olvidó representar un importante detalle, es decir, las cuatro fuertes setas (*h*) en el lado interior de la parte basal de los gonópodos, lo que ha sido la causa de la falsa interpretación de la especie hasta la fecha.

Remonté la preparación que estaba mal orientada, volteando el insecto al otro lado y tomé un nuevo dibujo (Fig. 4, Fig. 5) que representa las partes del hipopigio en su posición normal. Los siguientes detalles parecen ser característicos para *P. atroclavatus*:

El proceso inferior (tergal) (*e*) es tan largo como la parte basal (*a*) del gonópodo. Esta tiene en su lado interior, un poco antes de la mitad, un grupo de cuatro fuertes cerdas, aproximadamente tan largas como el artejo distal del gonópodo. Este artejo está provisto de cuatro espinas, una terminal, las otras tres situadas en las últimas dos quintas del mismo (las dos dorsales juntas, en igual distancia de la espina terminal y de la espina subventral). El proceso interior (*c*) es tan largo como

el segundo artejo del gonópodo, delgado, ligeramente encorvado (cóncavo), hacia la punta roma un poco ensanchado, con unos pocos pelitos en la parte basal del margen inferior y con unos 16 pelitos largos submarginales en la parte distal del proceso (Fig. 4). Su base es muy ensanchada, tres veces más gruesa que la parte distal (Fig. 5) y casi de forma cuadrada. Los filamentos genitales terminan en forma de un bisturí, puntiagudo, con el filo de 12 micra de largo (Fig. 7 y 7a).

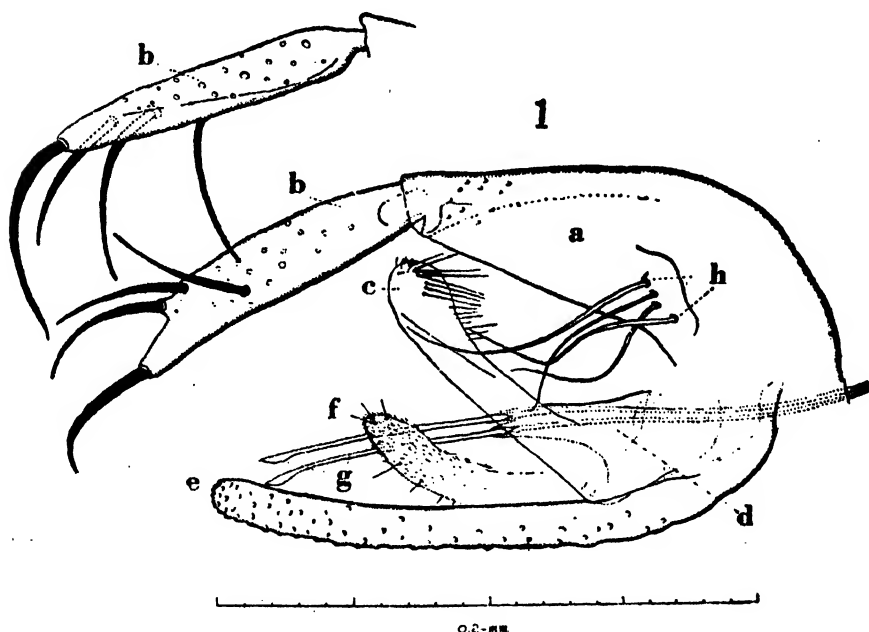


Fig. 1. *Phlebotomus atroclavatus* Knab, 1913. (Holotipo macho No. 16580 del Museo Nacional de Washington, D. C., Gasparee Island, Trinidad, 3.8 '13, F. W. Urlich coll.). Hipopigrio visto de lado derecho (preparación que sirvió a Knab para su dibujo). a, parte basal, b, parte distal del gonópodo izquierdo; b', parte distal del gonópodo derecho; c, gonapófisis interior derecha, en posición torcida; d, válvula copuladora; e, gonapófisis inferior derecha; f, laminilla submediana (cercus) derecha; g, filamentos genitales; h, grupo de cuatro cerdas en el lado interior de la parte basal del gonópodo izquierdo.

Entre los caracteres menciono el relativamente corto tercer artejo de la antena (Fig. 6), con un ascoide también muy corto (no logré ver el segundo, por la desfavorable posición del objeto), cuya base se encuentra algo abultada (Fig. 6a), sin formar un proceso.

Las medidas que pude tomar se encuentran anotadas en el cuadro No. 1.

Relación de P. atroclavatus Knab 1913 con P. guadeloupensis Floch & Abonnenc 1925 y P. tejerae Larrousse 1921.

Comparando el hipopigio de *P. atroclavatus* con el exacto dibujo que dan Floch y Abonnenc del mismo órgano de *P. guadeloupensis*, notamos casi completa identidad. Comparando las medidas para las dos especies, presentadas en el cuadro No. 1, podemos ver que en su mayoría son muy semejantes y en algunos casos idénticas. No pude aclarar, por falta de acceso al material, porque las medidas que tomé antes y después de remontar la preparación de *P. atroclavatus*, se difieren tanto. Se trata posiblemente de un cambio en la longitud del tubo del microscopio, sin hacer la anotación respectiva. Estos datos dudosos se encuentran incluidos en paréntesis en el cuadro. Creo que no puede existir la menor duda que *P. atroclavatus* y *P. guadeloupensis* son la misma especie.

Phlebotomus tejerae Larrousse fué descrito por el autor en el año de 1921 según un macho y dos hembras, de procedencia venezolana, de una manera muy superficial, sin mencionar por ejemplo, si las medidas del tamaño total, del ala, de las patas posteriores, etc., se refieren al macho o a la hembra. Se ha quedado, por este motivo, entre las especies "inquirendae". La descripción está por suerte acompañada de un dibujo del artejo distal del gonópodo (Fig. 20,B, 1921) que corresponde perfectamente bien a la misma parte del órgano en *P. atroclavatus*. También el tamaño es igual, juzgando por la escala del dibujo. Nuñez Tovar en su trabajo sobre los mosquitos y flebotómidos venezolanos (1924, p. 42/43, lám. 5, fig. 1, 2) se concreta a copiar los dibujos de Larrousse y a publicar la traducción del texto francés en español. Galliard (1934) tuvo la oportunidad de investigar los "tipos" de Larrousse y da una descripción y un dibujo (fig. 2, 1. c.) tanto de la bucofaringe como de la espermoteca de la hembra. Comparando estos dibujos con los que dan Floch y Abonnenc para la hembra de *Phlebotomus guadeloupensis* (= *atroclavatus*) y tomando en cuenta su carácter semiesquemático, notamos una tan gran semejanza que parece justificado declarar la identidad de las dos especies, incluyendo al *P. tejerae* en la sinonimia de *P. atroclavatus*. Las estrías transversales de la faringe, provistas de dientecitos que se vuelven más delgados hacia la parte posterior del órgano; la forma de la espermoteca y sus proporciones con relación a la longitud del canal, son casi idénticas en

	<i>P. atroclavatus</i>	<i>P. guadeloupensis</i>
Ala: longitud	1350	1400
ancho	340	342
relación longitud/ancho	4	4
alpha	250	250
beta	200	250
delta	75	103
Cabeza: longitud	210	208
piño	155	—
clipeo	95	95
Antenas: longitud total	1450	1514
3. artejo	240	248
ascoide del tercer artejo	30	—
Palpos: longitud total	638	662
1. artejo	27	29
2. artejo	90	95
3. artejo	133	138
4. artejo	98	100
5. artejo	290	300
Torax: longitud	455	431
Patas posteriores: longitud total	2790	2790
femur	700	648
tibia	970	972
tarso 1	520	540
tarso 2	250	252
tarso 3, 4, 5	350	378
Segmento basal del gonópodo	185 (215)	181
Segmento distal del gonópodo	125 (135)	129
Gonapófisis interior(margen superior)	(155)	158
Gonapófisis inferior	225 (245)	219
Valvula genital: longitud	60 (75)	66
ancho	30 (25)	27
Filamento genital	(340)	329
bombita seminal	(120)	109

Cuadro No. 1. — Cuadro comparativo de algunas medidas de los machos de *Phlebotomus atroclavatus* (holotipo) y *P. guadeloupensis* (vease Floch y Abonnenc, 1945, pgs. 1, 2)

ambas especies. Tanto en el dibujo de Floch & Abonnenc (fig. K) como en el de Galliard (fig. 2, b) el marco bucal aparece sin las "auricula", detalle muy peculiar si resulta ser constante en esta especie. La última palabra en este asunto tendrán los entomólogos venezolanos que podrán reunir más material en el lugar topotípico de *P. tejerae*, que es el caserío Mene Grande, Municipio General Urdaneta, Estado Zulia, Venezuela.

Parece que los llamados "tipos" de Larrousse del *P. tejerae* ya no existen más. Obsequiando mi solicitud, el Profesor Emile Brumpt tuvo la gentileza de remitirme en el año de 1936 los supuestos originales de Larrousse que se guardan en forma de preparaciones microscópicas en la Facultad de Medicina en Paris. Debido a la acción del medio de inclusión (fenol-

clorato) los dos ejemplares estaban fuertemente deteriorados, pero permitieron ver que el macho perteneció a la misma especie que encontramos entre los supuestos cotipos de *P. atroclavatus* (idéntica o afín con *P. cayennensis* Fl. & A.) y que la hembra representaba una especie muy diferente de la hembra descrita por Gaillard. Me ocuparé de estas formas en otra ocasión.

La sinonimia y bibliografía de nuestra especie queda como sigue:

Phlebotomus atroclavatus Knab 1913.

1913. — *Phl. a. n. sp.*, Knab, Ins. Insc. Menstr. I (11) : 135-137, fig.
 1921. — *Phl. (Sergentomyia) a.*, França & Parrot, Arch. Inst. Pasteur Afrique Nord I : 284.
 1921. — *Phl. a.*, Larrousse, Etudes Phlébot. :67, 73.
 1922. — *Phl. a.*, Larrousse, Bull. Soc. Zool. France 47 (2) :45.
 1926. — *Phl. a.*, Dyar & Nuñez Tovar, Inst. Insc. Menstr. XIV (10/12) :154/5.
 1929. — *Phl. (Neophlebotomus) a.*, Dyar, Am. J. Hyg. 10 (1):120, 124.
 1932. — *Phl. a.*, Costa Lima, Mem. Inst. Oswaldo Cruz 26 (1): 29/30, 55.
 1934. — *F. a.*, Costa Lima, Rev. Entom. 4 (4):425.
 1934. — *Phl. a.*, Galliard, Ann. Parasit. 12 (3) : 198.
 1940. — *Phl. a.*, Coutinho & Barretto, An. Fac. Med. Univ. S. Paulo 16:200.
 1942. — *F. a.*, Mangabeira, Mem. Inst. Oswaldo Cruz 37 (2):157.
 1943. — *Phl. a.*, Floch & Abonnenc, Publ. 62, Inst. Pasteur Guyane (Franc.):6.
 1945. — *F. a.*, Rapp, J. New York Ent. Soc. 53:22 (nom. nud.).

= *Phlebotomus tejerae* Larrousse 1921.

1921. — *Phl. t.*, Larrousse, Etudes Phlébot. :71, 72, f. 20.
 1922. — *Phl. t.*, Larrousse, Bull. Soc. Zool. France 47 (2):41.
 1924. — *Phl. t.*, Nuñez Tovar, Mosq. & Phlebot. Venez. :42/3, lam. 5 fig. 1, 2.
 1929. — *Phl. t.*, Dyar, Amer. J. Hyg., X (1):120.
 1934. — *Phl. t.*, Galliard, Ann. Parasit. 12 (3): 197/8, f. 2.
 1942. — *F. t.*, Mangabeira, Mem. Inst. Osw. Cruz 37 (2): 157.
 1945. — *Phl. t.*, Floch & Abonnenc, Publ. 100, Inst. Pasteur Guyane (Franc.) p. 9, pl. III.

= *Phlebotomus guadeloupensis* Floch & Abonnenc 1945.

1945. — *Phl. g.*, Floch & Abonnenc, Publ. 96, Inst. Pasteur Guyane (Franc.) :1-3, figs.
 1945. — *Phl. g.*, Floch & Abonnenc, Publ. 100, Inst. Pasteur Guyane (Franc.) :11, 22, pl. IV.
 1946. — *Phlébotome*, Floch, Rapport Inst. Pasteur Guyane Fr. 1945 p. 25, 123/4.

Por la forma de la espermoteca, por los cuatro dientes en la bucofaringe de la hembra y por la posesión de un grupo de cerdas en el lado interior del gonópodo del macho, *P. atrocla-*

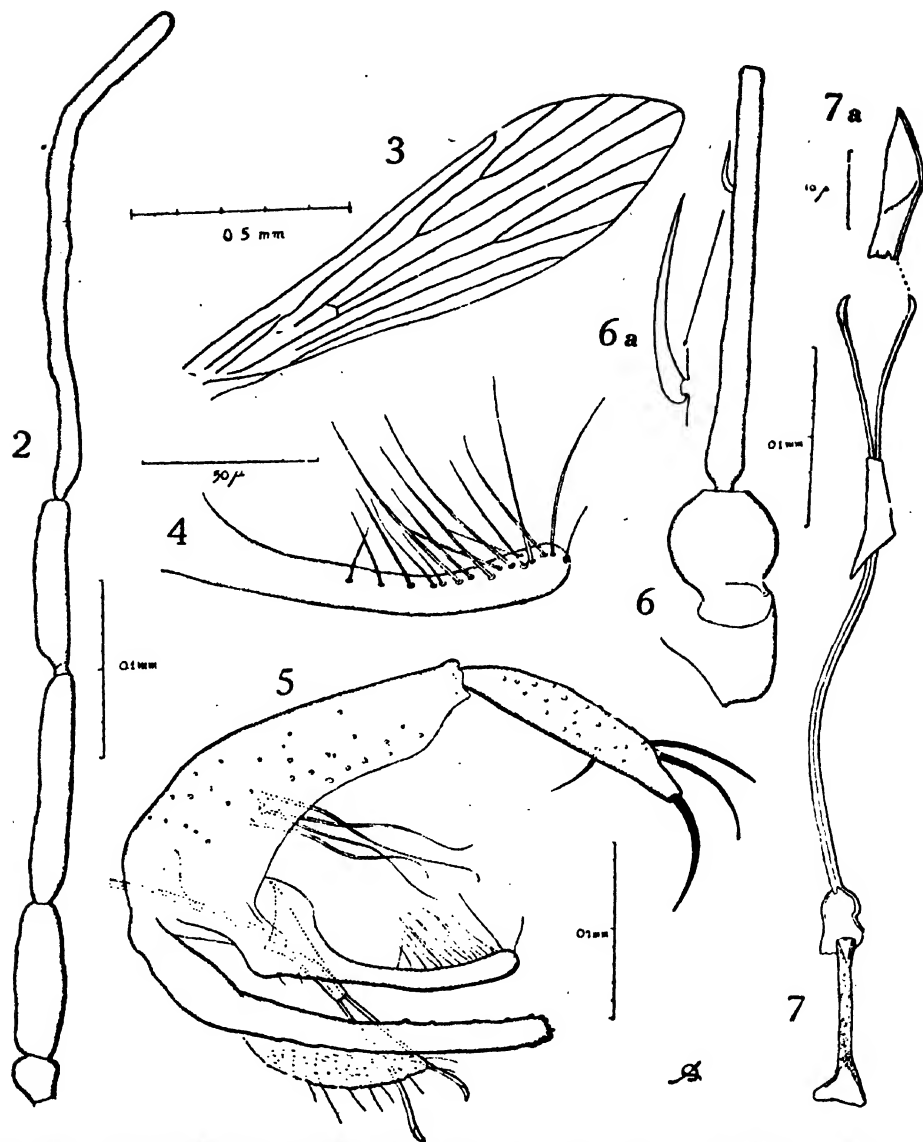


Fig. 2. *Phlebotomus atrocavatus* Knab, 1913, holotipo, palpo. — Fig. 3. Ala. — Fig. 4. Gonap  fisis interior izquierdo (parte de la Fig. 5), vista de lado interior. — Fig. 5. El mismo hipopigio de la Fig. 1, volteado, que ense a su lado izquierdo. — Fig. 6. Los tres primeros artejos de la antena. — Fig. 6a. Ascoide del tercer artejo, fuertemente amplificado. — Fig. 7. Filamentos genitales. — Fig. 7a. Punta de un filamento, fuertemente amplificada.

vatus se coloca en el   rculo de las especies, compuesto por *P. cruciatus* Coq. 1907, *P. diabolicus* Hall 1936, *P. japignyi* Floch & Abonnenc 1944, *P. gomezi* Nitzulescu 1931, *P. suis* Rozeboom 1940 y quiz  s por *P. fonsecai* Costa Lima (no se conoce el macho). Como se ve, este grupo es muy diferente del grupo "atro-

clavatus" que Mangabeira estableció en el año de 1942 (Mem. Inst. Oswaldo Cruz 37 (2): 157-158), basándose en los vagos datos de la literatura. Estamos aún muy lejos de comprender qué caracteres en los flebotómidos tienen importancia filogenética, pero estamos vislumbrando ya una serie de "Artenkreise", algunos con valor de géneros, como *Psychodopygus* Mangabeira 1941, *Brumptomyia* França y Parrot 1921, *Phlebotomus* s. str. (no representado en el continente americano), otros como subgéneros (*Shannonomyia* Dyar 1929, por ejemplo), que nos permitirá un día trazar la evolución de este grupo de dípteros y precisar el centro de su "creación" que parece ser el continente Sudamericano.

Al iniciar esta serie de notas, es para mi un grato deber hacer presente mi agradecimiento tanto a las autoridades de la Fundación Guggenheim que hicieron posible el estudio de los tipos, como a los autoridades y encargados del Museo Nacional en Washington, D. C., que pusieron a mi disposición todas las facilidades del Museo, permitiéndome trabajar en los históricos recintos de la División de Insectos hasta altas horas de la noche. Entre las personas a las que debo gratitud, quiero poner en primera línea a los doctores Alexander Wetmore, Adam Böving, C. F. W. Muesebeck, Edward A. Chapin, Alan Stone, H. S. Barber, R. E. Snodgrass, H. E. Ewing, David G. Hall. Tuve el gusto de visitar a mi buen amigo, Dr. L. O. Howard, a quien encontré, después de una larga y fecunda vida, llena de actividades, descansando, leyendo novelas policíacas y de misterios. De hecho, qué otra cosa estamos haciendo nosotros, los entomólogos, que investigar y tratar de resolver los misterios del mundo de los insectos que incluye los más grandes criminales de todos los tiempos: los mosquitos anofeles, las langostas migratorias, correspondiendo su lugar en esta serie también a los flebotomos, transmisores de la "kala-azar", fiebre de "pappataci", verruga peruana, botón de oriente, úlcera de los chicleros y quizás de otras enfermedades más.

R e s u m e n.

Redescripción del holotipo masculino de *Phlebotomus atroclavatus* Knab 1913, de Trinidad (Br. W. I.). Resultan sinónimos de esta especie *P. guadeloupensis* Floch & Abonnenc 1945, de la Isla Guadalupe (Antillas Francesas) y *P. tejerae* Larrousse, 1921 de Venezuela.

B i b l i o g r a f í a.

- Coutinho, J. O. & M. P. Barretto, 1940, Contribuição para o conhecimento dos flebotomos de São Paulo. III. — An. Fac. Med. Univ. São Paulo, 16: 193-206, 4 lam.
- Dyar, H. G.: 1929, The present knowledge of the American species of *Phlebotomus* Rondani. — Amer. J. Hyg. 10:112-124, 4 figs.
- Dyar, H. G. & Nuñez Tovar, 1927. Notes on biting flies from Venezuela. — Insec. Insc. Menstr., 1926, Vol 14 (10/12):152-155.
- Floch, H. & E. Abonnenc, 1945, Description d'un phlébotome nouveau de la Guadeloupe. — Publ. No. 96, Inst. Pasteur Guyanne, 4 pgs., figs.

- França, C. & L. Parrot, 1920, Introduction à l'étude systématique des diptères du genre *Phlebotomus*. — Bull. Soc. Path. exot. 13 (8): 695-708.
- 1921, Essai de classification des Phlébotomes. — Arch. Inst. Pasteur Afrique du Nord 1:279-284, 6 figs.
- Galliard, H., 1934, Sur quelques phlébotomes d'Amérique du Sud. — Ann. Parasit. human. comp. 12 (3): 196-202, 5 figs.
- Knab, F., 1913, A new American *Phlebotomus*. — Insec. Insc. Menstr. 1 (11): 135-137, fig.
- Larrousse, F., 1922, Nouvelle espece américaine du genre *Phlebotomus*, *P. tejerae*. — Bull. Soc. Zool. France pp. 41-42, 1 fig. (copia de la descripción y del dibujo, publicados en su tesis, 1921, pp. 71/2).
- Mangabeira, O., Filho, 1942, 7ª Contribuição ao estudo dos Flebotomos. — Mem. Inst. Oswaldo Cruz, 37 (2): 111-218, 148 figs.
- Tovar, Manuel Nuñez, 1924, Mosquitos y Flebotomos de Venezuela, Caracas, 46 pgs., 4 láminas.

II. La posición taxonómica de *Phlebotomus imperatrix* Alexander 1944. (Figs. 1-9).

En el año de 1944 C. P. Alexander dió a conocer un excepcionalmente grande flebotomo, procedente de Perú y colectado por Woytkowski en Junin, Huacapistana, Tarma, 3 de marzo 1940, en una altitud entre 3600 y 5400 pies o sea de 1100 a 1650 m. La especie, basada en una sola hembra, fué bautizada *Phlebotomus imperatrix* y descrita con la acostumbrada maestría y exactitud según sus caracteres exteriores, color, nervación, etc., pero sin mencionar la forma y la disposición de los ascoides en la antena, ni la estructura de la bucofaringe y la forma de las espermotecas, — detalles indispensables para caracterizar una hembra flebotómido. El *P. imperatrix* quedó colocado entre las especies "inquirendae", sin la posibilidad de reconocerle y precisar si se trata quizás de la misma especie que Marshall Hertig describió en el año de 1943 bajo el nombre de *Phlebotomus pescei* según 19 hembras, procedentes también de Perú, del valle Pincos, Provincia de Andahuaylas, Departamento de Apurimac, altura de 2000 a 2400 metros.

Tengo que dar a mi querido y estimado amigo, el Profesor Dr. C. P. Alexander, Amherst, Mass., mis más cumplidas gracias por su gentileza de permitirme disecar su holotipo (No. 7669 de la colección Alexander), para aclarar los puntos que quedaron oscuros. Por desgracia, el abdomen del tipo estaba ya convertido en preparación microscópica, con tan mala suerte que de la espermoteca, transparentada por la prolongada acción de la sosa cáustica, no se vió absolutamente nada. Para el problema de su relación con el *P. pescei* tiene este hecho por el momento

poca importancia, en vista de que M. Hertig tampoco menciona algo sobre este órgano.

Doy a continuación unas medidas del holotipo de *P. imperatrix*, expresadas en micra (micrones), agregando las pocas que presenta Hertig para su *P. pescei*. Sus dibujos permiten además calcular por medio de la escala de aumento unas medidas más, las que incorporé en el siguiente cuadro, incluidas en paréntesis. (Cuadro No. 2).

Tenemos que advertir que las medidas de *P. imperatrix* están tomadas de un ejemplar tratado de sosa cáustica y montado en bálsamo, mientras que las medidas de *P. pescei* se refieren a ejemplares sin previo tratamiento con sosa.

Analizando los datos anteriores, encontramos varias diferencias entre las medidas de *P. imperatrix* y de *P. pescei*, los siguientes de aparente importancia taxonómica:

- 1) En *P. imperatrix* el tercer artejo de la antena es más largo (520) que en *pescei* (440-470).
- 2) Sus antenas son más largas (2790 contra 2400).
- 3) El cuarto artejo de los palpos es en *P. imperatrix* más corto (115) que en *P. pescei* (160-190).
- 4) El ala es en *P. imperatrix* más ancha (1150) que en *P. pescei* (850-890).
- 5) Las patas posteriores son más largas en *P. imperatrix* (6930 contra 5800-5070).

Estas diferencias no son suficientes para proclamar de que se trata de dos especies diferentes; falta lo principal: el estudio comparativo de las espermotecas y de sus canales. Debemos esperar más material de *P. imperatrix* y una redescrición de *P. pescei*. Para contribuir en algo a esta futura tarea, doy unos apuntes como resultado de la revisión del holotipo de *P. imperatrix*.

C a b e z a. (figs: 6 y 7). — Llama atención la muy pronunciada depresión apical del occipucio, acompañada de depresiones laterales. La relación entre ancho y largo (vista frontal) es 450/540 o sea 0,83. Hay otras especies como *P. anthophorus* Addis donde la relación es 0.73, las que podemos llamar dollicocéfalos, utilizando el término en un sentido algo diferente que en la antropología. No tengo estudiado el suficiente número de especies de *Phlebotomus*, para precisar qué índice debemos fijar como límite entre los tipos braquicéfalos y dollicocéfalos y tampoco puedo dar una indicación sobre la variabilidad dentro

	<i>P. imperatrix</i>		<i>P. pescei</i>
Cabeza: longitud (Occipucio-clípeo)	540		(530)
ancho	450		(425)
tubo bucal sin faringe	725		
faringe	235		(280)
clípeo	200		
pico (desde el clípeo)	530		
mandíbula	530		
Antena: 1. artejo	55		
2. "	85		
3. "	530		440-470
4. "	240		200-240
5. "	230		200-230
6. "	215		
7. "	210		(200)
8. "	195		
9. "	175		
10. "	165		
11. "	155		
12. "	140		
13. "	140		
14. "	105		
15. "	80		
16. "	70		
longitud total de la antena	2790		2400
ascoides del tercer artejo	125 y 90		
Palpo: 1. artejo	45		50-80
2. artejo	275		230-270
3. artejo	250		240-280
4. artejo	115		160-190
5. artejo	355		300-410
longitud total del palpo	1050		980
Torax: longitud	750		
Ala: longitud	3200		2860-3200
ancho	1150		850-990
relación largo / ancho	2,8		
alfa	1170		
beta	415		
gamma	490		
delta	340		
	anteriores	medianas	posteriores
Patas: femur	1110	1070	1200
tibia	1940	2100	2575
tarso 1	1350	1525	1675
tarso 2	480	500	610
tarso 3	350	350	420
tarso 4	270	250	300
tarso 5	150	150	150
total	5790	5945	6930
Abdomen: cerci, longitud			190
ancho			75
apodema de la horquilla genital			125

Cuadro No. 2

de la misma especie. Sin embargo, creo que esta relación cefálica es de utilidad en la taxonomía de los flebotómidos.

Existen otros detalles en la morfología de la cabeza, aún no utilizados para separar las especies y definir los subgéneros, como por ejemplo el tamaño y la forma de las fossas antenales y el ancho del puente entre los dos; el ancho y la forma de los escleritos preantennales y postantennales, etc. Esta última zona postantenal que se encuentra separada de la frente por una sutura incompleta (sutura postfrontal), tiene dos regiones de forma ovalada (fig. 6, 3) que Christophers, Shortt y Barraud (1926) interpretan como restos de las ocelas desaparecidas. Los mencionados autores hicieron cortes de esta parte de la cabeza, demostrando que llega un nervio a cada uno de estos supuestos vestigios de ocelas y que la hipodermis es mucho más grueso que en otras partes de la cápsula. Para aclarar si se trata de un órgano sensorial con funciones desconocidas o de ocelas rudimentarias, tendríamos que investigar las condiciones en otros géneros de *Psychodoidea*, lo que no se ha hecho hasta ahora. En los pocos psicódidos que comparé no encontré el referido órgano postantenal.

El lado posterior de la cabeza ofrece también varios detalles, como el submentum (10), el tamaño y la forma de los "stipites" de la maxila (9) y del cardo (8), aún no aprovechados para fines taxonómicos.

Bucofaringe (figs. 2, 3). — Los cuatro dientes bien desarrollados (fig. 3) y la forma de pliegues y de los finos dientecitos en forma de peines en la parte posterior de la faringe son caracteres tan frecuentes entre los flebotómos que no indican nada sobre la posición taxonómica del *P. imperatrix*. Sin embargo, no recuerdo haber visto en otras especies la peculiar manera de unión de la cavidad bucal con la faringe que enseña nuestra especie. Como es bien sabido, la faringe en los flebotómidos está formada de tres placas, una dorsal y dos laterales que unidas constituyen una cavidad de corte triangular. Las líneas de unión de estas placas forman crestas, dos laterales y una ventral. Esta última, llegando al marco quitinoso (fig. 3, 4 y 6) que lleva los cuatro dientes horizontales, se bifurca y se extiende a una corta distancia por el lado ventral del tubo bucal. La prolongación de la cresta lleva pequeños dientecitos y no me sorprendería encontrar un día una especie de un flebotomo que haya realizado de una manera más completa la tendencia de formar en la región anterior de la faringe un sistema de pliegues

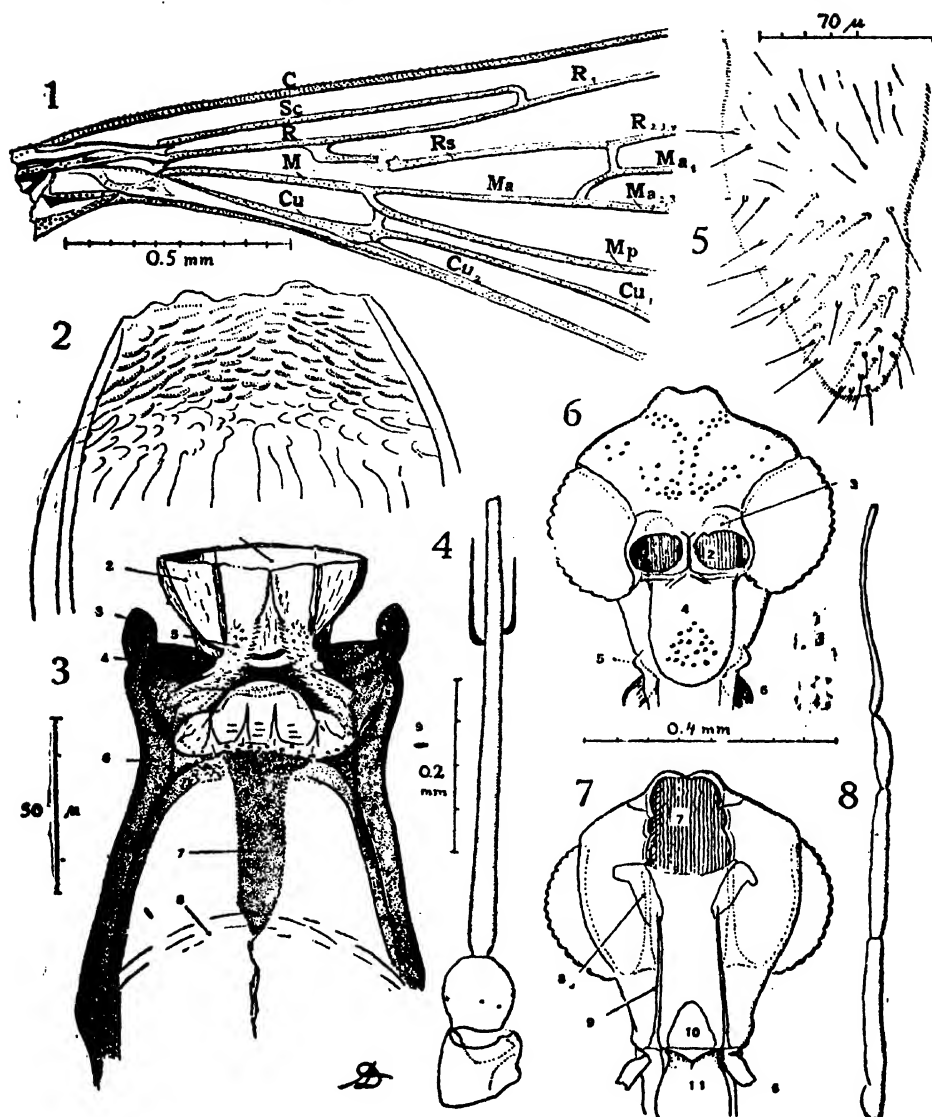


Fig. 1-8: *Phlebotomus imperatrix* Alexander 1944, holotipo hembra (coll. C. P. Alexander, No. 7669). — Fig. 1. Base del ala, lado inferior. C, vena costal; Sc, vena subcostal; R, base de la vena radial; R1, primera rama radial; Rs, sector radial; R2, 3, 4, base de la segunda, tercera y cuarta ramas radiales; M, base de las venas medias; Ma, base de la vena media anterior; Ma1, primera rama de la media anterior; TTT Ma2, 3, base de la segunda y tercera ramas de la media anterior; Mp, media posterior; Cu, base de la vena cubital; Cu1 y Cu2, primera y segunda rama de la vena cubital. — Fig. 2. Parte posterior de la placa dorsal de la faringe, vista del lado ventral. — Fig. 3. Parte de la bucofaringe, vista del lado ventral. 1, placa dorsal de la faringe; 2, placas laterales de la faringe; 3, aurícula del marco bucal; 4, trabecula posterior de la abertura bucal; 5, pliegue que se extiende del lado ventral de la faringe sobre el marco bucal; 6, trabecula anterior de la abertura bucal; 7, placa pigmentada del tubo bucal; 8, arco quitinoso del tubo bucal. (Las figuras 2 y 3 son del mismo aumento). — Fig. 4. Los tres primeros artejos de la antena, el tercer artejo con sus dos ascoides. — Fig. 5. Parte del cercus del lado derecho. — Fig. 6. Cabeza vista de frente y Fig. 7, visto de lado posterior. 1, ojos compuestos; 2, rosa antenal; 3, problematicos vestigios de las ocelas; 4, clipeo; 5, inserción de las mandíbulas; 6, inserción de los palpos; 7, foramen occipital; 8, cardo maxilar; 9, stipes maxilar; 10, submentum; 11, mentum. — Fig. 8. Palpo (mismo aumento que las figs. 6 y 7).

y dientecitos semejante al que existe en la parte posterior. Tiene el *P. imperatrix*, como la mayoría (quizás todos) de los flebotómos, entre las trabeculas anterior (6) y posterior (4) del marco bucal una protuberancia transparente y refringente (9) que podemos comparar con una lengua. En nuestra especie la trabecula anterior (6), de la cual nacen generalmente los dientes horizontales y verticales, no está quitinizada en su totalidad y se ve que la placa quitinizada del tubo bucal (7) se prolonga hasta la base de la llamada lengua. *P. pescei* y *P. imperatrix* coinciden en que el arco quitinoso (8) que pasa por la pared ventral de la cavidad bucal entre la trabecula anterior (6) y la pompa salival (esta última no aparece en el dibujo), es casi rudimentaria y solo sus partes laterales son bien visibles.

Ala. — Doy en la fig. 1 un croquis de la disposición de la nervadura de la base del ala que en *P. imperatrix* presenta nada peculiar y que corresponde perfectamente bien en sus detalles con lo que observamos en muchos otros flebotómos. No existen dudas en la interpretación de las venas basales. La primera es la vena costal (*C*) que da vuelta por el margen de toda el ala. La segunda, la vena subcostal (*Sc*) es una vena cóncava que no se une con la vena costal sino con la siguiente (convexa) que es la primera rama (R_1) del sistema radial, formando así la primera célula basal. La unión se verifica por medio de una corta vena transversal, sin macrotriquias, que unos autores interpretan como la segunda rama de la subcosta. Aproximadamente en la mitad del lado inferior o interior de la primera célula basal nace el sector radial (*Rs*) (vena cóncava) que tiene su base atrofiada (sin macrotriquios) y fracturada, condición que prevalece en todos los flebotómos que he estudiado. El sector radial se bifurca, dando origen a la rama superior que se bifurca otra vez, formando las ramas R_2 y R_3 , y a la rama inferior R_4 que queda simple. Basándose en la autoridad de Comstock, Needham, Alexander, Tonnoir y otros, los autores interpretan generalmente la siguiente vena (convexa) como quinta rama de la vena radial, sin fijarse que esta debe formarse por medio de una bifurcación de la vena R_4 y no partir de la base del sector radial. Además deberá ser cóncavo como las venas de este sector. Es verdad que existe un psicódido, la extraña *Horaiella*, de la India (*H. prodigiosa* Tonnoir 1933 y *H. consimilis* Tonnoir 1933), que aparentemente tiene la rama inferior del sector radial bifurcado, pero en este caso la rama superior es simple y Tonnoir mismo (1933 p. 63) llama la

atención a la posibilidad de que la rama inferior capturó al R_3 , en vista de que la base de esta vena, unida con el R_4 , no lleva macrotríquios. Si esta interpretación es correcta, la nervadura de *Horaiella* resultaría muy semejante a la de un *Phlebotomus*, lo que nos permitiría interpretar este enigmático insecto quizás como un flebotómido, cuya larva se adaptó a la vida acuática. No sé si la estructura de la muy peculiar larva de *Horaiella* está en favor de esta suposición.

Hendel (1928), en su excelente introducción a la sistemática y morfología de los dípteros de Alemania, es aún partidario de un sistema radial con cinco venas en los dípteros. En el año de 1927 Vignon y en el de 1929 Vignon y Ségu y, seguido por Vignon en 1932, presentaron poderosos argumentos en favor de la teoría de que la supuesta quinta rama radial es en verdad la primera rama de la vena media, utilizando para sus deducciones la casi olvidada teoría de Adolph (1885) sobre las venas cóncavas y convexas. Hendel, en su maestro tratado de dípteros en el manual de zoología de Kükenthal y Krumbach (Vol. IV, segunda parte), en donde reproduce un dibujo de Vignon (Fig. 1876), renunció a su primera opinión y se adhirió a la interpretación de Vignon y Ségu y. También un tan buen conocedor de la nervadura de insectos como Enderlein, interpreta las venas del psicódido *Lepria squamosa* Enderlein de Costa Rica (Deutsche Ent. Zeitschr. 1936, p. 112, fig. 1) en el sentido de que la quinta rama del radio es la primera del medio. En nuestro ejemplar de *P. imperatrix* puede observarse con toda claridad que la supuesta quinta rama del sistema radial nace de la vena media (*M*) y está conectada con el sistema radial solo por una vena transversal sin macrotríquias, formando un árculo posterior asimétrico. Semejante disposición del árculo es raro en flebotómidos americanos, donde tiene generalmente la forma simétrica de una Y, pero se encuentra aparentemente con más frecuencia en las especies de Asia. Hojeando las clásicas treinta y seis "Notas" de Sinton sobre flebotómidos de India, encontramos los siguientes casos en los que la parte inferior del árculo nace de la vena media de la manera tan oblicua como en *P. imperatrix*:

Phlebotomus himalayensis Annandale 1910 (Sinton, Ind. J. Med. Res. 11 (3): pl. 46, figs. 1 y 4) (hembra y macho);

P. newsteadi Sinton 1926 (l. c., 13 (3), pl. 30, fig. 1);

? *P. malabaricus* Annandale 1910 hembra (Sinton, l. c., 14 (4), pl. 41, fig. 1).

P. clydei Sinton 1928 (l. c., 16 (1), pl. 16, macho) (la hembra, pl. 17, fig. 12, tiene un árculo simétrico).

Según la figura que presenta R a y n a l de *P. ariasi* Tonnoir 1921, (en Arch. Inst. Pasteur Indochin., No. 19, April 1934, fig. 5), también esta especie tiene la parte inferior del árculo más oblicua que la superior.

En un ejemplar hembra de *P. heckenrothi* Floch & Abonnenc 1942 que debo a la gentileza del Dr. H. F l o c h, el ala del lado izquierdo no muestra ni trazos del ramo superior del árculo, quedando la vena en discusión, unida únicamente con la vena media.

En los *Bruchomyiinae*, subfamilia de los *Phlebotomidae*, el árculo se encuentra no antes sino después de la primera bifurcación del sector radial, lo que da el aspecto de que la tercera rama radial se ha bifurcado (véase A l e x a n d e r, 1929, fig. 1; 1940, fig. 1, 2; Tonnoir 1939, fig. 5). Esto ha dado, sin duda, origen a la hipótesis de las cinco ramas radiales en los psicódidos. Creo que hay suficiente razón para rechazar la interpretación de C o m s t o c k - N e e d h a m y aceptar la de V i g n o n - S é g u y.

Desde este último punto de vista las restantes venas en el ala de un flebótomo deben llevar las siguientes nombres. La vena media (Fig. 1, *M*) se bifurca a la altura de la fractura del sector radial en una rama superior que puede llamarse media anterior (*Ma*) y una rama inferior — la media posterior (*Mp*). La media anterior se bifurca en una rama superior (*Ma*₁) que es la que han tomada por la quinta vena radial, y una inferior que se bifurca también, dando origen a *Ma*₂ y *Ma*₃. La media posterior queda simple. En su base está conectada por medio de una vena transversal, sin macrotriquias, con la vena cubital (*Cu*), formando así la tercera célula basal.

El último tramo basal debe interpretarse como la base de la vena cubital (*Cu*) que se encuentra unida con el borde posterior del ala y que se bifurca en una vena superior (*Cu*₁) (convexa), visiblemente más gruesa que las otras venas del ala, y una vena inferior (*Cu*₂), casi atrofiada. Las dos pertenecen probablemente al cúbito anterior.

No niego la posibilidad de que la región anal del ala de los flebotomos ha sufrido fusiones y desplazamientos de venas que hace imposible apreciar su verdadero valor morfológico. Quizás tenga razón T o n n o i r (1939, p. 36) que dice con respecto

a este problema: "Some secondary developments have taken place which obscure the original conditions". La nervadura de la familia *Phlebotomidae* es muy uniforme en sus representantes (algo semejante sucede en la familia *Culicidae*) y aún formas tan aberrantes como las especies del subgénero *Psychodopygus* Mangabeira 1941, no se desvían del tipo flebotómico, lo que dificulta en mucho la tarea de encontrar las tendencias filogenéticas del desarrollo de la nervadura. No es necesario ser tan

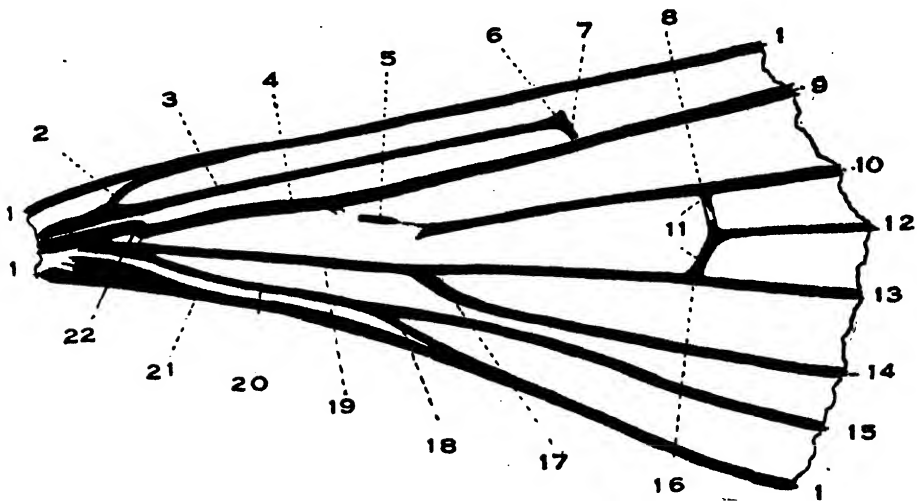


Fig. 9. Base del ala de *Phlebotomus texanus* Dampf, 1939, croquis. 1, vena costal; 2, vena humeral; 3, vena subcostal; 4, base del sistema radial; 5, base fracturada del sector radial; 6, rama superior rudimentaria de la subcosta; 7, rama inferior de la subcosta; 8, unión del sector radial por una vena transversal (parte superior del árculo posterior), con el sistema de la vena media; 9, primera rama de la vena radial; 10, sector radial; 11, árculo posterior; 12, primera rama de la media anterior que forma en su base la parte inferior del árculo posterior; 13, segunda rama de la media anterior; 14, media posterior; 15, primera vena cubital; 16, origen de la primera media anterior; 17, origen de la media posterior; 18, bifurcación de la vena cubital; 19, base de la vena media; 20, base de la vena cubital; 21, vestigios de la vena anal; 22, torsión de la base de la vena radial.

pesimista como C. W. Woodworth (Univ. of Calif. Publ. Entom. I (1), Sept. 1906 p. 145) quien piensa "that strict homology is not possible throughout the whole series of insects, in the case of any vein, not even the primary" y quien quiere establecer para cada grupo su propia nomenclatura. Lo que es correcto es que cada grupo de insectos ha seguido su camino especial en la evolución de la nervadura. Es por tal motivo una de las más atractivas tareas de la morfología comparada, definir las homologías y analogías, teniendo siempre presente de

que lo buscamos no es la confirmación de una teoría, sino lo que efectivamente ha sucedido.

Conservo entre mis apuntes el croquis de la nervadura basal del ala de *Phlebotomus texanus* Dampf 1939 que lleva la fecha de 22 de mayo de 1936 y que sometí para su crítica a mi buen amigo Dr. Charles P. Alexander sin llegar a un acuerdo sobre los detalles en disputa. Basándome en este croquis doy en la figura 9, como suplemento a la figura 1, una interpretación de las venas en la base alar de *P. texanus*, para demostrar lo poco que varía el plan general.

Encontramos en *P. texanus* una vena humeral (2) que no estaba visible en *P. imperatrix*. La subcosta (3) termina de una manera abrupta, uniéndose con la vena radial por medio de su rama inferior (7), mientras que la rama exterior queda sólo un vestigio (6). La vena radial (9) está en su base algo torcida (22). Una torsión semejante representa Alexander (1940, p. 797, fig. 2) para *Nemopalpus dampfianus* de México (Subfam. *Bruchomyiinae*). En la parte basal del sector radial (5) notamos la misma interrupción de la vena como en *P. imperatrix*. El arculo posterior (11) que une el sector radial con el sistema de la vena media, es de forma simétrica y situado en la misma distancia de la base del ala como en *P. imperatrix*. Los otros detalles son también como en esta especie, sólo que aquí falta la vena transversal entre el sistema de la media (19) y del cúbito (20). Este último se bifurca claramente en dos ramas (15 y 18) que debemos interpretar como la primera y segunda vena cubital. Hay indicios de una vena anal (21).

Hipopigio Femenino. — Como ya mencioné, la espermoteca y otros detalles del aparato genital del holotipo no se prestan para un estudio por encontrarse destruidos. Los cerci (fig. 5) son de forma alargada, poco encorvados, los pelos o setas del lado exterior cortos, en número aproximadamente de 20. El lado interior del cercus lleva unas 25 setas, también cortas. La relación entre longitud y ancho de los cerci es 2,5. No logré aclarar ni la forma ni el número de las cerdas en la cresta postgenital.

C. França publicó en el año de 1921 (Bull. Soc. Path. Exot. XIV p. 23/24) un instructivo para describir una hembra *Phlebotomus*. Hoy, más de 25 años después, ninguno de sus caracteres tiene valor decisivo y en su lugar han surgido nuevos,

entre los cuales se destacan los siguientes, arreglados según su importancia. Se entiende que la descripción deberá incluir el mayor número posible de medidas, preferible en máxima y mínima, acompañado por dibujos de los órganos tratados, con escala de aumento:

1. La espermoteca con sus canales en su totalidad, incluyendo el poro genital.
2. La bucofaringe desde el clipeo, acompañado de dibujos de los dientes de la faringe y del tubo bucal, tomados con ayuda de objetivos de inmersión.
3. Vista lateral del cercus.
4. Tercer artejo de la antena y forma y tamaño de los ascoides.
5. Palpo.

Los otros datos son secundarios, pero útiles y a veces indispensables para completar el cuadro, como p. e. forma del ala (ancha, intermedia, angosta); tamaño del insecto (grande, mediano, pequeño); longitud de las patas posteriores; longitud de la antena, del clipeo, del pico, etc. Todos estos datos deben tomarse en cuenta, cuando se trata de precisar las relaciones interespecíficas en el género o subgénero.

No pude consultar las proposiciones de las investigadoras rusas P. A. Petrischeva (1934) y A. J. Schurenkova (1941) que recomiendan cada una un método standard para la descripción de nuevas especies de flebótomos.

R e s u m e n .

Según el holotipo, *Phlebotomus imperatrix* Alexander 1944 se distingue de *P. pescei* Hertig 1943 por suas antenas y patas posteriores más largas, mayor longitud del tercer artejo de la antena y el corto cuarto artejo del palpo. Un estudio comparativo de la espermoteca de las dos especies solo puede decidir si las diferencias son específicas. Se da a conocer un nuevo detalle morfológico de la bucofaringe y se juntan datos en favor de la teoría de que en los dípteros el sistema radial de la nervadura tiene solo cuatro ramas.

S u m m a r y .

According to the holotype of *P. imperatrix* Alexander 1944 the species is very near *P. pescei* Hertig 1943 and differs only in the longer antennae (especially the third joint), longer hind legs and shorter fourth joint of the palpus. The study of the still unknown spermothecae of both species must decide if these differences are specific or not. The author makes known a peculiar structure of the phlebotomid buccopharynx and discusses the wing venation in this family, adding facts in favor of the four branched condition of the radial system in Diptera.

Bibliografía.

- Alexander, C. P., 1929, A revision of the American two-winged flies of the Psychodid subfamily *Bruchomyinae*. — Proc. U. S. Nat. Mus. 75 (7), 9 pgs., 2 figs.
- 1940, Further observations on the Psychodid subfamily *Bruchomyinae*. — Rev. Entom. 11 (3): 793-799, 5 figs.
- 1944, Two undescribed species of Psychodid diptera from tropical America. — Rev. Entom. 15: 313-317, 3 figs.
- Adolph, E., 1885, Die Dipterenflügel, ihr Schema und ihre Ableitung. — Nova Acta Leop.-Carol. Akad. Naturf., 47: 269-314, Taf. 24-27.
- Christophers, S. R., H. E. Shortt & P. J. Barraud, 1926, The anatomy of the sandfly *Phlebotomus argentipes* Ann. & Brun. I. The head and mouth parts of the imago. — Indian Med.-Res. Memoirs No. 4, Calcutta, pp. 177-204, pls. 16-25.
- Hendel, Fr., 1928, Die Tierwelt Deutschlands. 11. Teil: Zweiflügler oder Diptera. II. Allgemeiner Teil. 135 S., 224 Abb., Jena, Gustav Fischer.
- 1936, Diptera, in: Handbuch der Zoologie, herausg. von Kükenthal & Krumbach, Bd. IV, Teil 2, pp. 1729-1998, figs. 1855-2173, Berlin & Leipzig.
- Hertig, Marshall, 1943, Notes on Peruvian sandflies, with description of *Phlebotomus battistini* n. sp. and *P. pescei* n. sp. — Amer. J. Hyg. 37:246-251, 2 pls.
- Tonnoir, A. L., 1933, Descriptions of remarkable Indian *Psychodidae*. — Records Indian Mus. 35 (1):53-75, 7 figs., pl. II.
- 1935, The Australian species of the genus *Phlebotomus*. — Bull. Ent. Res. 26 (2):137-147, 3 figs., 1 pl.
- 1939, Psychodidae, in: British Museum (Natural History). — Ruwenzori Expedition 1934-35, Vol. I, No. 4, pp. 35-80, 156 figs., pls. 23, 24.
- Vignon, P. & E. Séguy, 1929, Sur la présence de la nervure médiane haute chez les diptères. — C. R. Acad. Sci. Paris 188:1699-1701, 1 fig.
- Vignon, P., 1932, Explication morphologique des ailes chez les diptères et des coléoptères. — C. R. Acad. Sci. Paris, 194:1517-1520, 5 figs.

Notes on the Tropical American Species of Tipulidae (Diptera).

III. The Specialized Eriopterini: *Rhabdomastix*, *Cryptolabis*, *Erioptera*, *Molophilus*, *Styringomyia*, *Toxorhina*, and Allies.

By Charles P. Alexander, University of Massachusetts,
Department of Entomology, Amherst, Massachusetts.

(With 32 figures)

In the preceding part under this general title I have discussed the so-called primitive Eriopterine crane-flies. In the present paper the remaining genera that are commonly referred to this tribe will be considered. As indicated in the paper cited, the primary character upon which these apparently more specialized forms are defined is the enlarged mesothoracic meron, a distinction that was noted first by C r a m p t o n (Insec. Inscit. Menst., 13: 197-213, pls. 2-3; 1925). In the genera here discussed the meron is unusually large and has become detached from the middle coxa, becoming adherent to the ventral region of the mesepimeron so that the middle and hind coxae are widely separated, producing the so-called "pot-bellied" appearance characteristic of the included genera. In C r a m p t o n's paper various species were studied and his report should be consulted by all workers on this subject. The genera falling in the subtribe Eriopteraria so figured and described include the following: *Rhabdomastix* (figs. 3, 15); *Cryptolabis* (fig. 8); *Erioptera*, subgenera *Erioptera*, *Symplecta*, *Psiloconopa* and *Empeda* (figs. 1, 2, 5, 10, 11 and 12); *Ormosia* (figs. 7, 13); *Amphineurus* (figs. 6, 16), and *Molophilus* (figs. 4, 17). The subtribes Styringomyaria and Toxorhinaria were not discussed by C r a m p t o n. It may be noted that the latter's drawings include a lateral view showing all the thoracic sclerites and a ventral view depicting the prosternum and neck plates.

In various earlier reports, the genera here considered have been referred to three subtribes, the Eriopteraria, including the great bulk of the included forms; the Styringomyaria, including only *Styringomyia*; and the Toxorhinaria, including only *Toxorhina*.

The following genera and subgenera fall within the limits of this report.

Genera

Subgenera

Subtribe Eriopteraria

Rhabdomastix Skuse:

Cryptolabis Osten Sacken:

Erioptera Meigen:

Amphineurus Skuse:

Maietta Alexander.

Molophilus Curtis:

Tasiocera Skuse:

Subtribe Stytingomyaria

Stytingomyia Loew

Subtribe Toxorhinaria

Toxorhina Loew:

Rhabdomastix Skuse

Sacandaga Alexander

Baeoura Alexander

Procryptolabis Alexander

Cryptolabis O. S.

Erioptera Meigen

Mesocyphona Osten Sacken

Symplecta Meigen

Trimica Osten Sacken

Empedomorpha Alexander

Eriopterella Alexander

Psiloconopa Zetterstedt

Empeda Osten Sacken

Amphineurus Skuse

Rhamphoneurus Alexander

Molophilus Curtis

Eumolophilus Alexander

Trichomolophilus Alexander

Dasymolophilus Goetghebuer

As mentioned in the preceding report, *Lecteria* Osten Sacken will be treated under Part IV (Primitive Hexatomini) of this series of papers; *Ctenolimnophila* Alexander, with its subgenus *Campbellomyia* Alexander will be considered in Part V (Specialized Hexatomini).

Rhabdomastix Skuse

Rhabdomastix Skuse; Proc. Linn. Soc. New South Wales (2) 4: 828-829, pl. 22, fig. 15 (venation), pl. 24, fig. 57 (male hypopygium); 1890; (type *osten-sackeni* Skuse).

Subgenus *Sacandaga* Alexander

Sacandaga Alexander; Ent. News, 22: 349-352, fig. 1 (head), fig. 2 (tarsus), fig. 3 (venation); 1911; (type *flava* Alexander).

Body unusually glabrous. Tuberculate pits far forward. Antennae 16-segmented, in *Sacandaga* short, not exceeding the body in length and usually not attaining the wing root; in males of *Rhabdomastix* s. s., antennae of unusual length, from two to three times the length of body, or even longer; in the latter cases, flagellar segments very long-cylindrical, provided with

short scattered inconspicuous verticils and abundant pale setae, all of the vestiture restricted to one face of the segment or essentially so; no strong pupal or emergence bristles as in some other groups having greatly elongated antennae (Hexatomini: *Hexatoma-Eriocera*, males).

Wings generally broad, often with a conspicuous anal angle, this sometimes reduced (as in the genotype, *osten-sackeni*); veins usually glabrous, in some species (as *chilota*, *intermedia*, *plaumanni*, *synclera*, and others) with numerous trichia on veins beyond cord. Venation: *Sc* usually long, *Sc*₁ generally ending beyond two-thirds the length of *Rs*, usually much beyond; in *satipoensis*, *Sc* short, *Sc*₁ ending about opposite midlength of *Rs*; *Sc*₂ a short to moderate distance from tip of *Sc*₁, sometimes atrophied (as in the *lurida* group). *Rs* often very long and unusually straight; *R*₂ atrophied in the Neotropical species, preserved in the Holarctic forms; vein *R*₃ erect to oblique; cell *M*₁ lacking; cell 1st *M*₂ pentagonal or hexagonal, the medial veins issuing from it arched or flaring, particularly the distal section of *M*₁₋₂; *m* usually longer than the basal section of *M*₃; *m-cu* generally some distance beyond the fork of *M*; cell 2nd *A* wide. (Fig. 1, *plaumanni*, sp. n.).

Male hypopygium with the interbases appearing as slender spinelike rods that often terminate in weak spatulate blades, more rarely narrowed to the acute tips. Two dististyles, the outer one with microscopic appressed spinulae on the outer face, extending virtually to the base. (Fig. 2, *plaumanni*, sp. n.). Ovipositor with the valves, especially the cerci, long and slender, sclerotized.

The distinctions between the two subgenera are weak and the groups are maintained chiefly for convenience. In the typical condition, *Sacandaga* with its very short antennae seems very different from *Rhabdomastix*, with the greatly lengthened male organ, but the presence of a few intermediate types greatly lessens the value of this antennal character.

In distribution, the species of *Sacandaga* are chiefly Holarctic, with fewer species occurring in Tropical America and in New Zealand. *Rhabdomastix*, s. s., is essentially Australasian and Neotropical, particularly the latter, where species occur as far north as Mexico.

The immature stages as known are spent in wet earth near running water. The interrelationships existing between the Hexatomine genus *Ischnothrix* Bigot and *Rhabdomastix* are still uncertain. The following earlier quotation may be cited: "The

affinities of the *Atarbaria*, including *Atarba* and *Ischnothrix*, remain very puzzling and questionable. Both Edwards and I had considered *Ischnothrix* as representing a Hexatomine form, allied to *Limnophila*, but a study of the thoracic morphology now renders such an assignment improbable, the wide separation of the middle and hind coxae by the very large meron being a character of the Eriopteraria. The resemblance of certain species of *Ischnothrix* to species of *Rhabdomastix* is most noteworthy, especially in the case of certain of the species described in this report. This resemblance is so marked that the chief characters still available for the separation of the two groups lie in the presence or absence of tibial spurs and the structure of the male hypopygium. Since *Rhabdomastix* has been placed without question in the Eriopteraria, it may be that the *Atarbaria* find their affinities near this latter group despite the presence of tibial spurs in *Ischnothrix* and all but a few species of *Atarba*. The question of the relationships of the group was further complicated by the discovery of the immature stages of *Atarba* by Rogers (Florida Entomologist, 10: 49-55, figs. 1-7; 1927), where the indication was made that the genus *Atarba* was a member of the tribe Limoniini, closest to *Dicranoptycha*. The two genera *Ischnothrix* and *Atarba* require further critical study and analysis before their affinities can be worked out as beyond question. In the present report the genera are retained tentatively in the Hexatomini." (Alexander, Diptera of Patagonia and South Chile, 1: 167; 1929.) Since the above was written little further light has been thrown on the question. The genus *Lachocera* Philippi (1865) is believed to be akin to *Ischnothrix* and will be considered in part V of this series of papers.

List of Species

Sacandaga

- (*basalis* Alexander, see *Erioptera-Empeda*)
- caparaensis* Alexander. Southeastern Brazil.
- (*complicata* Alexander, see *Erioptera-Empeda*).
- fumipennis* Alexander. — Lesser Antilles: Dominica.
- intermedia* Alexander. — Patagonia, South Chile.
- (*parva* Alexander, see *parvula* nom. nov.).
- parvula* nom. nov. — Jamaica, Hispaniola.
- plaumanni*, sp. n. — Southeastern Brazil.
- synclera* Alexander. — South Chile.

Rhabdomastix

- alticola* Alexander. — Peru.
- chilota* Alexander. — South Chile.
- illudens* Alexander. — Bolivia.

isabella Alexander. — Mexico.
longiterebrata Alexander. — Mexico.
luteola Alexander. — Peru.
mexicana Alexander. — Mexico.
peruviana Alexander. — Peru.
posticata Alexander. — South Chile.
satipoensis Alexander. — Peru.
septemtrionis Alexander. — Costa Rica.
tantilla Alexander. — Colombia.
unipuncta Alexander. — Venezuela.

It should be repeated that Edwards (Trans. Soc. Brit. Ent., 5: 112-117; 1938) placed *Rhabdomastix* among the more primitive Eriopterini, following *Gonomyia*. He believed that it served to connect the *Gonomyia* and the Eriopteraria.

Rhabdomastix (Sacandaga) parvula, nom. n.

Rhabdomastix parva (Alexander); Proc. U. S. Nat. Mus., 44: 508-509; 1913 (as *Sacandaga*), nec *Rhabdomastix parva* (Siebke); Nyt Magaz. f. Naturvidensk., 12: 178; 1863 (as *Limnobia*).

Lackschewitz 1933, Edwards 1938 and others have called attention to the fact that the long-misunderstood *Limnobia parva* Siebke is a member of this genus, necessitating the re-naming of my species.

Rhabdomastix (Sacandaga) plaumanni, sp. n.

Size relatively small (wing, male, under 5 mm.); general coloration of head and thorax dark brown, the abdomen still darker; antennae short; halteres and legs brown; wings with a very strong brownish tinge; macrotrichia on all longitudinal veins beyond cord; male hypopygium with the outer dististyle slightly dilated at outer end; inner style stout, tapering to the very narrowly obtuse apex, the whole surface with long pale setae; gonapophyses long and needle-like.

Male. — Length, about 4.5-5 mm.; wing, 4.3-4.8 mm.

Rostrum and palpi dark brown. Antennae dark brown, short; flagellar segments oval, with long conspicuous verticils, these nearly three times as long as the segments. Head dark brown.

Thorax almost uniformly dark brown, unpatterned, the pronotal scutellum and pretergites vaguely more testaceous. Halteres dark brown, the base of stem very restrictedly pale. Legs with the coxae and trochanters testaceous yellow; remainder of legs brown. Wings (Fig. 1) with a very strong brownish tinge, the prearcular and costal fields a trifle more darkened; veins

brown. Macrotrichia on all longitudinal veins beyond cord, as well as outer end of vein 1st A. Venation: Sc long, Sc_1 ending about opposite three-fourths to four-fifths Rs , Sc_2 a short distance from its tip, Sc_1 alone about four times Sc_2 ; R_{2-3-4} long and nearly straight; vein R_3 oblique, less than one-third R_{2-3-4} ; veins issuing from cell 1st M_2 nearly straight, not or scarcely arched; $m-cu$ at near midlength of cell 1st M_2 ; cell 2nd A relatively narrow.

Abdomen brownish black, the hypopygium a trifle paler. Male hypopygium (Fig. 2) with the basistyle, b , long and slender. Outer dististyle, d , slender, the entire outer face with numerous subappressed spicules, more numerous and conspicuous at the slightly enlarged head. Inner dististyle stout, tapering to the very narrowly obtuse apex, the whole surface with long pale setae from conspicuous tubercles, not grouped into a brush, as in *caparaoensis*. Gonapophyses long and needle-like, narrowed to the very slender apical blades.

Habitat: Brazil (Santa Catharina).

Holotype, ♂, Nova Teutonia, September 26, 1944 (Fritz Plaumann). Paratopotype, ♂.

I take great pleasure in naming this very distinct fly for the collector, Mr. Fritz Plaumann, who has added vastly to our knowledge of the insect fauna of the environs of Nova Teutonia. The only related regional species having short antennae is the much larger *Rhædomastix* (*Sacandaga*) *caparaoensis* Alexander (Brazil: Minas Geraes, São Paulo), which differs further in the venation and in the structure of the male hypopygium, especially both dististyles.

Cryptolabis Osten Sacken

Cryptolabis Osten Sacken; Proc. Acad. Nat. Sci. Philadelphia, 1859: 224; 1859; (type *paradoxa* Osten Sacken).

I recognize three subgenera, all of which occur in Tropical America, and which will be discussed in order.

Subg. *Baeoura* Alexander

Erioptera (*Baeoura*) Alexander; Ann. Ent. Soc. America, 17: 67; 1924; (type *nigrolatera* Alexander, South Africa).

Wings (Fig. 3) with Sc long, Sc_1 ending nearly opposite the fork of the unusually long Rs , the latter approximately one-half the total distance between arculus and the wing-tip or nearly twice vein R_4 alone; R_{2-3-4} short, veins R_3 and R_4 gently divergent; cell 1st M_2 closed, with $m-cu$ at near midlength; cell 2nd A broad. Veins beyond cord with macrotrichia but with none of these in the wing cells.

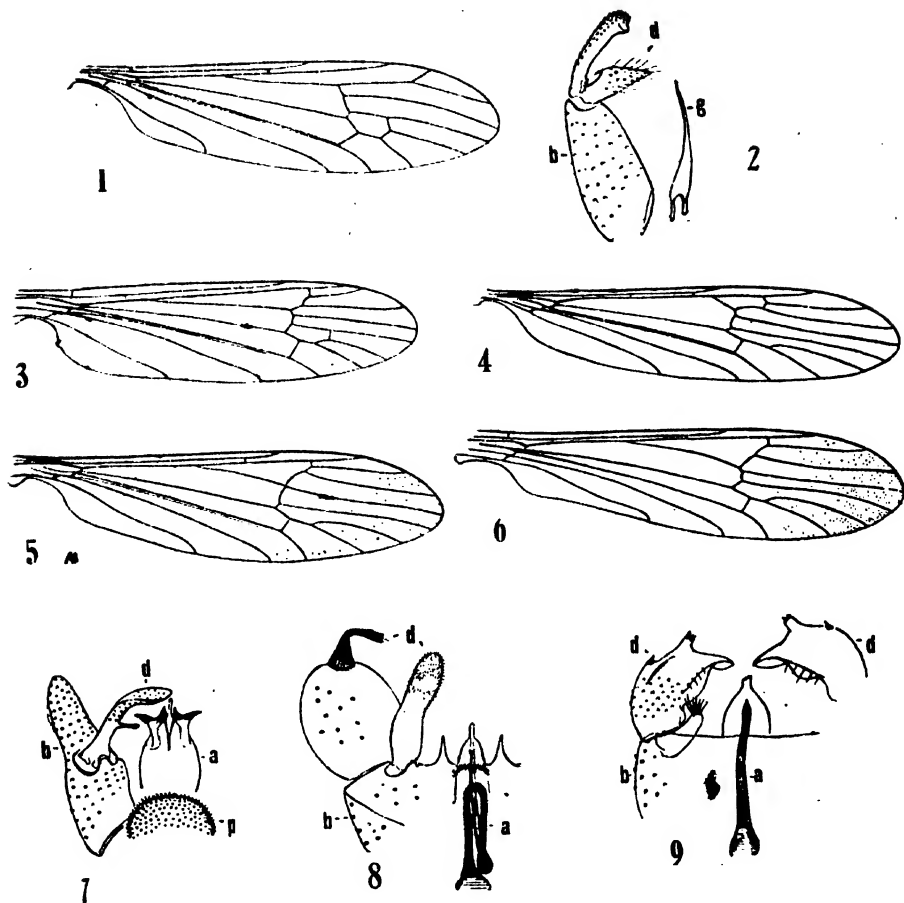


Fig. 1. *Rhadomastix (Sacandaga) plaumanni*, sp. n.; venation. — Fig. 2. The same, male hypopygium. — Fig. 3 *Cryptolabis (Baeoura) advena* Alexander; venation. — Fig. 4. *Cryptolabis (Procryptolabis) bariloehensis* Alexander; venation. — Fig. 5. *Cryptolabis (Cryptolabis) ecalcarata*, sp. n.; venation. — Fig. 6. *Cryptolabis (Cryptolabis) alticola* Alexander; venation. — Fig. 7. *Cryptolabis (Baeoura) advena* Alexander; male hypopygium. — Fig. 8. *Cryptolabis (Cryptolabis) ecalcarata*, sp. n.; male hypopygium. — Fig. 9. *Cryptolabis (Cryptolabis) vallicola*, sp. n.; male hypopygium. — (Symbols: a, aedeagus; b, basistyle; d, dististyle; g, gonapophysis; p, phallosome).

Male hypopygium (Fig. 7) with the dististyle single, sub-terminal in position, placed just beyond midlength of mesal face of basistyle; style elongate, a little expanded at tip, conspicuously setiferous; lower edge at near midlength bearing a slender blackened arm. Phallosome a broad low cushion that is densely blackened arm. Aedeagus and apophyses completely exserted, extending caudad approximately to the outer end of the basistyle, each apophysis terminating in two blackened points. (Figs. 3, 7, *Cryptolabis (Baeoura) advena*).

Most of the known species of *Baeoura* occur in South Africa and in the Oriental Region, a few being found in Formosa and Palaearctic Eastern Asia. The single species that has been found in the New World is the one discussed and figured herewith, *Cryptolabis (Baeoura) advena* Alexander, of Chile. In some regards this species appears to be more generalized than the various Old World members of the subgenus.

Subg. *Procryptolabis* Alexander

Cryptolabis (Procryptolabis) Alexander; Ent. News, 34: 183; 1923; (type *argentinensis* Alexander).

Distinguished from the typical subgenus chiefly by the glabrous cells of the wings. The only species known are the two listed. The venation of *barilochensis* is shown (Fig. 4).

argentinensis Alexander. — Argentina (Cordoba).

barilochensis Alexander. — Patagonia.

Subg. *Cryptolabis* Osten Sacken, s. s.

The typical subgenus is the largest and best known of the three groups. The group is well distinguished both by the venation and by the structure of the male and female genitalia.

In venation, *Rs* varies in length from long to very long, in cases equal to four times R_{2-3-4} , with cell R_1 correspondingly extended basad (*alticola*, Fig. 6); the opposite extreme is found in species such as *tenuicincta* where *Rs* is straight and sub-transverse, less than twice R_{2-3-4} and only a little longer than *r-m*; *r-m* usually at or shortly before the fork of *Rs*, in cases beyond the fork on R_5 , as in *umbrosa*, *varipes* and others; R_2 often in direct transverse alignment with vein R_{2-3} ; outer branches of *Rs* tending to swing slightly cephalad at their tips; *m-cu* at or near two-thirds the length of M_{3-4} or beyond this point on vein M_4 ; the opposite extreme, as found in species such as *tenuicincta*, *varipes* and others, where vein M_3 lies on the upper fork of media, there being a short element M_{1-2-3} .

Macrotrichia of wing cells sparse (as in *tenuicincta*) to very abundant, in extreme cases (as *taciturna*, *travassosi* and others) covering the outer two-thirds of the wing and even extending back to the wing base in the axillary region.

In the living insects, the genitalia of both sexes are superficially very alike, both being very blunt and obtuse. In the male sex the best specific characters are to be found in the shape and armature of the usually single dististyle and in the

structure of the aedeagus. The dististyle may be terminal in position (as in *vallicola*, Fig. 9) or subterminal. Aedeagus heavily blackened and sclerotized, transversely striated or corrugated, in cases very stout; in several species the organ is bent back upon itself so as to appear strongly convoluted (Figs. 8; 9). In the female, both the cerci and hypovalvae are short and fleshy. When gravid, the abdomen is filled with relatively few unusually large eggs with thickened and heavily blackened chorion.

The center of distribution of the subgenus is in the American Tropics. A few species, including the genotype, *paradoxa*, range northward into the Nearctic Region as far as southern Canada. A few further species of this subgenus occur in southeastern Australia (New South Wales to Tasmania) and would seem to have reached Australasia via Antarctica. The genus seems unquestionably to be an ancient one, despite the lack of fossil evidence as known to the present date.

The immature stages of *Cryptolabis* are not definitely known but from the scanty available evidence are probably aquatic. Edwards found some very peculiar Tipulid larvae in southern Chile that were suspected as probably being *Cryptolabis* and this supposition of an aquatic habitat is borne out by the occurrence of the adult flies at or close to the margins of streams or other water bodies.

List of Species

(*Cryptolabis* s. s.)

- alticola* Alexander. — Ecuador.
- atmophora* Alexander. — South Chile.
- chilota* Alexander. — South Chile.
- diversipes* Alexander. — Costa Rica.
- ecalcarata*, sp. n. — Costa Rica.
- fuscovenosa* Alexander. — Mexico.
- hilaris* Alexander. — Peru.
- invaripes* Alexander. — Costa Rica.
- jovialis* Alexander. — Peru.
- jubilata* Alexander. — Ecuador.
- laddeyi* Alexander. — Ecuador.
- laticostata* Alexander. — Ecuador.
- longiradialis* Alexander. — Mexico.
- luteiceps* Alexander. — Mexico.
- luteicosta* Alexander. — Panama.
- luteola* Alexander. — Mexico.
- molophiloides* Alexander. — Northern Mexico and northward in the United States.
- monacantha* Alexander. — Ecuador.
- nebulicincta* Alexander. — Venezuela.
- parrai* Alexander. — Mexico.
- recurvata* Alexander. — Ecuador.

- roundsi* Alexander. — Costa Rica.
schadei Alexander. — Southeastern Brazil.
sepulchralis Alexander. — Paraguay.
sordidipes Alexander. — Ecuador.
spatulata Alexander. — Patagonia.
taciturna Alexander. — Southeastern Brazil.
tenuicincta Alexander. — Peru.
travassosi Alexander. — Southeastern Brazil.
tropicalis Alexander. — Guatemala.
umbrosa Alexander. — Southeastern Brazil.
vallicola, sp. n. — Panama.
varipes Alexander. — Costa Rica.

Cryptolabis (Cryptolabis) ecalcarata, sp. n.

Allied to *roundsi*; mesonotum medium brown, virtually unpatterned; thoracic pleura yellow with a broad brown dorso-longitudinal stripe; *Rs* long, more than three times R_{2-3-4} ; macrotrichia of cells relatively sparse; male hypopygium with the outer dististyle rounded, with a dense pencil of setae at summit, lacking a spine on the face; phallosome slender, strongly convoluted.

Male. — Length, about 3 mm.; wing, 3.8-4 mm.

Rostrum brownish yellow; palpi brown. Antennae pale brown; verticils very long. Head yellow.

Pronotum and pretergites pale yellow. Mesonotum medium brown, virtually unpatterned, the humeral region of praescutum more yellowed; postnotum slightly darker. Pleura yellow, with a broad brown dorsolongitudinal stripe extending from the cervical region to the postnotum. Halteres pale. Legs with the coxae and trochanters yellow; femora and tibiae obscure yellow, the tips weakly darkened; outer tarsal segments passing into brown. Wings (Fig. 5) whitish subhyaline, the prearcular and costal fields a trifle more yellowed. Macrotrichia of cells relatively sparse, virtually restricted to the outer half of the cells beyond cord. Venation: *Rs* long, more than three times R_{2-3-4} , the latter nearly perpendicular at origin; *Rs* in longitudinal alignment with R_5 , *r-m* and R_{2-3-4} interstitial.

Abdomen brown, the hypopygium somewhat more brownish yellow. Male hypopygium (Fig. 8) having the general structure of *roundsi*, that is, with two dististyles and a slender, strongly convoluted aedeagus, the two species differing in all details. Outer dististyle, *d*, a pale rounded or circular structure, with a dense brush or pencil of setae at summit, but without a spine, as in *roundsi*. Inner dististyle an elongate foot-shaped lobe or

cushion that is densely setuliferous. Region of tergite terminating in two separate pale points, between which lies a small setiferous cushion.

Habitat: Costa Rica.

Holotype, ♂, Higuito, San Mateo (Pablo Schild); United States National Museum. Paratopotypes, 2, apparently both ♂♂.

In the original description of *Cryptolabis* (*Cryptolabis*) *roundsi* Alexander (Rev. de Entomol., 10: 630-631; 1939) I had interpreted the outer dististyle, as described above, as being the basistyle but it now seems certain that there are two dististyles or profound lobes of the same. In such an interpretation, the very small basistyle is closely consolidated or fused with the tergite.

Cryptolabis (*Cryptolabis*) *vallicola*, sp. n.

General coloration of thoracic notum dark brown, the pleura brown, with a blackened spot on the anepisternum; wings with a strong blackish tinge; *Rs* long, nearly four times R_{2-3-4} ; *m-cu* at near midlength of M_{3-4} ; male hypopygium with the dististyle terminal, large and broad, the apical margin produced and variously armed; surface of style near base with numerous setae, some very long and strong; aedeagus straight and slender.

Male. — Length, about 3.5 mm.; wing, 4.1 mm.

Rostrum brown; palpi black. Antennae with the scape and pedicel black; flagellum broken. Head brown, opaque.

Pretergites testaceous yellow. Mesonotum almost uniformly dark brown, without pattern. Dorsopleural region pale, the remainder of pleura brown, with a blackened spot on the anepisternum. Halteres with stem dusky, its base and the knob pale yellow. Legs with the coxae and trochanters yellow; remainder of legs broken. Wings with a strong blackish tinge, the prearcular field more whitened; veins and macrotrichia darker brown. Cells of wing beyond cord with relatively numerous macrotrichia, more abundant in the outer ends of the cells, extending basad to one-fifth or one-sixth the length of the outer radial cells or virtually to the cord. Venation: *Rs* elongate, gently sinuous, nearly four times R_{2-3-4} ; *Rs* in direct longitudinal alignment with vein R_5 , the basal section of the latter short to very short; *m-cu* at midlength of vein M_{3-4} ; vein 2nd A gently sinuous.

Abdomen brownish black, the dististyles of the male hypopygium brownish yellow. Male hypopygium (Fig. 9) with the dististyle, *d*, terminal, large and broad, the lower outer angle produced into a flattened scoop; upper outer angle with a stouter lobe that bears two strong setae (the tips of these latter are

broken and their length cannot be stated); dorsal margin of style with a single small strong spine; surface of style, especially the basal third, with numerous strong setae, directed outward, some of these bristles very long. Apex of basistyle produced mesad into a strong lobe that terminates in about eight strong setae. Aedeagus, *a*, straight and relatively slender.

Habitat: Panama.

Holotype, ♂, El Valle, altitude 1800 feet, January 1947 (N. L. H. Krauss).

The present fly is quite distinct from the other described regional forms, especially in the very different structure of the male hypopygium, particularly the dististyle. In its general appearance the species is most like *Cryptolabis* (*Cryptolabis*) *taciturna* but is entirely distinct.

Erioptera Meigen

Polymeda Meigen; Nouv. Class. Mouches, p. 14; 1800; (nom. nud., no type).
Erioptera Meigen; Illiger's Mag. für Insektenk., 2: 262; 1803; (type *grisea* Blanchard; see note under *Molophilus*).
Chemalida Rondani; Prodromus Dipterologiae Italicae, 1: 180; 1856 (type *taenionota* Meigen).
Ilisophila Rondani; Prodromus, 1: 180; 1856 (type *lutea* Meigen).
Limnoea Rondani; Prodromus, 1: 181; 1856 (type *flavescens* Linnaeus); (indicated as being preoccupied by *Limnaea* Poli, 1791).
Limnolea Rondani; Prodromus, 4 (Corrigenda): 11; 1861 (new name for *Limnoea*).

A few notes concerning the above synonymy. Osten Sacken (Mon. Dipt. N. America, 4: 12; 1869) discusses the Rondani genera and designates the types, following Rondani. Later (Berlin. Ent. Zeitsch., 31: 230-233; 1887) he further discusses the Rondani names and in some instances indicates a type different from the earlier view. Concerning *Erioptera*, s. s., Coquillett (1910) had designated *lutea* Meigen as type. Much earlier, Curtis (1835) had designated *flavescens* Linnaeus as type but since this was not one of the species included by Meigen the designation is untenable. The designation of *grisea* as type, as above indicated, will be discussed later under the genus *Molophilus*. As regards *Ilisophila*, the original designation was *lutea*; in 1887 Osten Sacken attempted to associate the name with the subgenus *Empeda* Osten Sacken.

As indicated at the beginning of the present report, eight of the subgenera into which *Erioptera* has been divided have been recorded from Tropical America. These eight groups will be discussed in order.

Subg. *Erioptera* Meigen, s. s.

The typical subgenus is best developed in the Holarctic Region though with somewhat numerous representatives in

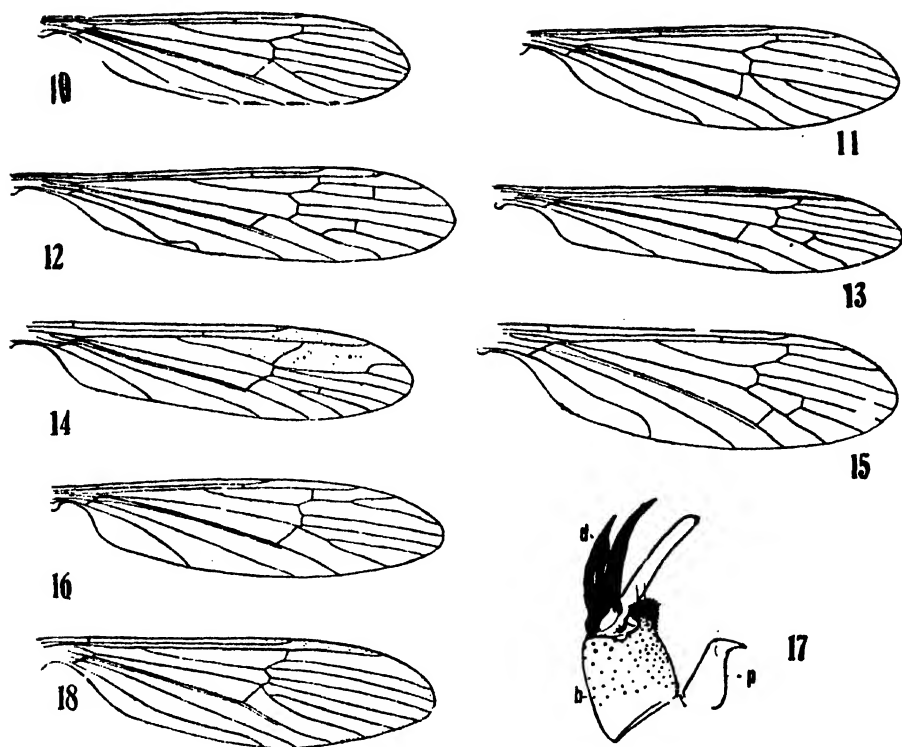


Fig. 10. *Erioptera (Erioptera) andina* Alexander; venation. — Fig. 11. *Erioptera (Mesocyphona) fuscodiscalis* Alexander; venation. — Fig. 12. *Erioptera (Symplecta) colombiana* Alexander; venation. — Fig. 13. *Erioptera (Trimicra) pilipes andensis* (Alexander); venation. — Fig. 14. *Erioptera (Empedomorpha) apacheana* Alexander; venation, ♂. — Fig. 15. *Erioptera (Eriopterella) jaffuelli* Alexander; venation. — Fig. 16. *Erioptera (Empeda) ochricauda* Alexander; venation. — Fig. 17. *Erioptera (Empeda) austronymphica* Alexander; male hypopygium. — Fig. 18. *Amphineurus (Amphineurus) extraordinarius* Alexander; venation. — (Symbols: b, basistyle; d, dististyles; p. phallosome).

Tropical America. Elsewhere a relatively few forms occur in the Ethiopian, Oriental and Australasian Regions, in the last named with a few species in the higher mountains of New Guinea. Other Australasian species formerly assigned to this subgenus seem to fall in other groups, particularly in *Meterioptera* Alexander. The typical subgenus is best defined by having cell M_2 of the wings open by the atrophy of m and with vein 2nd A strongly sinuous. (Fig. 10, *andina*). There is no fusion of the basal segments of the flagellum as in *Meterioptera*.

List of Species

- andina* Alexander. — Colombia.
annulipes Williston. — Lesser Antilles.
apicalba Alexander. — British Guiana; Amazonian Brazil.

- celestis* Alexander. — Venezuela, Ecuador.
cladophora Alexander. — Brazil.
cladophoroides Alexander. — Argentina.
dampfi Alexander. — Mexico.
laetipleura Alexander. — Mexico.
lunigera Alexander. — South Chile.
micromyia Alexander. — Amazonian Brazil; Peru.
multiannulata Alexander. — Southeastern Brazil.
polydonta Alexander. — Peru.
polytricha Alexander. — Ecuador.
quadricincta Alexander. — Mexico.
quinquecincta Alexander. — Colombia.
susurra Alexander. — Peru.
urania Alexander. — Ecuador.

It may be noted that various Neotropical species centering about *annulipes* are referred to the typical subgenus because of the venation, that is, cell M_2 open by the atrophy of m , instead of the atrophy of the basal section on vein M_3 , as is the case in the subgenus *Mesocyphona*. It should be noted however that the basic structure of the male hypopygium in this group is not unlike that in *Mesocyphona* and it may well be that all of the members of this group of flies are more properly placed in *Mesocyphona*.

Subg. *Mesocyphona* Osten Sacken

Erioptera (*Mesocyphona*) Osten Sacken; Mon. Dipt. N. America, 4: 152; 1869; (type *caloptera* Say).

This subgenus was proposed for the chiefly Nearctic *caloptera* Say (*caliptera* Say) and *parva* Osten Sacken. Besides a few further Nearctic species, there are rather numerous Tropical American forms, as shown by the accompanying list. The subgenus is one of the commonest and most characteristic groups throughout Tropical America, with the exception of Chile. The various species occur chiefly at low altitudes but some species reach elevations of 8000 feet or more in mountainous areas, particularly Mexico. In the mountains of western North America, various further species range to altitudes of 8000 feet or higher. Whether there are any further species that are strictly con-subgeneric remains in question. The Oriental species so placed by Brunetti certainly fall elsewhere. The strict subgeneric position of the North African *transmarina* Bergroth is similarly questionable although it may be found to belong here.

The subgenus is close to typical *Erioptera*, differing chiefly in the shorter and less sinuous vein 2nd A and in having cell M_2 open by the atrophy of the basal section of vein M_3 . (Fig.

11, *fuscodiscalis*). In most species the wing cells are glabrous but in a few (*costalis* and allies) there are a few scattered macrotrichia in some of the cells beyond the cord.

The immature stages of all groups of *Erioptera*, as known, are found in wet earth or mud, usually near water.

List of Species

- aglaia* Alexander. — Southeastern Brazil.
- apicinigra* Alexander. — Mexico.
- bicinctipes* Alexander. — Eastern Brazil.
- caloptera* Say. — Antilles and southward; Nearctic.
- c. subevanescens* Alexander. — Ecuador.
- costalis* Alexander. — Cuba, Guatemala, Mexico.
- cynthia* Alexander. — Ecuador.
- diffusa* Alexander. — Amazonian Brazil.
- eiseni* Alexander. — Mexico, Guatemala, Colombia, Peru (south-western U. S.).
- euphrosyne* Alexander. — Southeastern Brazil.
- factiosa* Alexander. — Ecuador; Peru.
- femoranigra* Alexander. — Mexico; Costa Rica.
- fuscivena* Alexander. — Southeastern Brazil, Paraguay, Argentina.
- fuscodiscalis* Alexander. — Mexico.
- gulosa* Alexander. — Peru.
- histrio* Alexander. — Ecuador; Peru.
- immaculata* Alexander. — Mexico, Guatemala, Nicaragua.
- inornatipes* Alexander. — Mexico.
- intercepta* Alexander. — Surinam.
- invariegata* Alexander. — Ecuador, Peru.
- iquitosensis* Alexander. — Amazonian Peru.
- knabi* Alexander. — Mexico (northward in U. S.).
- leonensis* Alexander. — Mexico.
- leucopasta* Alexander. — Mexico.
- modica* Alexander. — Mexico.
- parva* Osten Sacken. — Ecuador and northward; (Nearctic).
- p. brasiliensis* Alexander. — Eastern Brazil.
- portoricensis* Alexander. — Puerto Rico.
- quadrifurcata* Alexander. — Mexico, Salvador, Venezuela, Ecuador.
- saturata* Alexander. — Mexico.
- splendida* Alexander. — Mexico, Guatemala (northward).
- subdulcis* Alexander. — Cuba.
- surinamensis* Alexander. — Surinam.
- tantilla* Alexander. — Cuba (southeastern U. S.).
- thalia* Alexander. — Southeastern Brazil.
- triangularis* Alexander. — Southeastern Brazil.
- trogodyta* Edwards. — Trinidad.
- turrialbae* Alexander. — Costa Rica.
- venustipes* Alexander. — Mexico.
- whitei* Alexander. — Guatemala.
- withycombei* Alexander. — Trinidad.

Subg. *Symplecta* Meigen

Helobia Lepeletier & Serville; Encycl. Meth., Ins., 10: 585; 1828 (preocc. *Helobia* Stephens, 1827); (type *punctipennis* Meigen).
Symplecta Meigen; Syst. Besch., 6: 282; 1830; (type *hybrida* Meigen).
Idioneura Philippi; Verh. zool.-bot. Ges. Wien, 15: 615; 1865; (type *macroptera* Philippi).
Symplectomorpha Mik; Wien. Ent. Zeitg., 5: 318; 1886; (type *stictica* Meigen).

The subgenus *Symplecta* includes only a few species, chiefly Nearctic, with approximately four species in the Palaearctic and nearly the same in the New World, including those listed below for Tropical America. These latter occur along the Andean chain, as far south as Chile. It should be noted that one species, *hybrida* Meigen (*punctipennis* Meigen) has a vast range over the Palaearctic Region, whereas in the New World it is replaced by an allied but evidently distinct species, *cana* (Walker).

The chief characters for defining the subgenus are venational, including the strongly bisinuous vein 2nd A and, in all local species, the presence of a supernumerary crossvein in cell R_3 of the wings (Fig. 12, *colombiana*). The immature stages of the species as known (*hybrida*, *cana*, *macroptera argentina*) are spent in moist earth near water.

List of Species

cana (Walker). — Mexico, Guatemala (Nearctic).
colombiana Alexander. — Colombia.
c. microptera Alexander. — Ecuador.
(*hybrida* Meigen, American records, see *cana*).
macroptera (Philippi). — Chile.
m. argentina Alexander. — Argentina.

Subg. *Trimicra* Osten Sacken

Trimicra Osten Sacken; Proc. Acad. Nat. Sci. Philadelphia 1861: 290; (type *anomala* Osten Sacken).

Characters very much as in *Erioptera*, s. s., the group having been based primarily on the relatively small size of the three outer antennal segments, and on the closed cell 1st M_2 of the wings. There are scarcely any points of difference to warrant even subgeneric ranking. Legs with very conspicuous erect or suberect setae, in some of the larger males these being unusually long and conspicuous. Wings (Fig. 13, *pilipes andensis*) with Sc long, Sc_1 ending approximately opposite R_2 , Sc_2 far from its tip, Sc_1 alone being approximately as long as or longer than the distal section of vein M_{1-2} ; Rs long and nearly straight, with the trichia long and conspicuous, more so than on the veins beyond the cord; cell 1st M_2 closed in New

World species; *m-cu* oblique, variable in position, before the fork of *M*; Anal veins divergent. Male hypopygium with the basistyle short and stout; dististyles two, apical in position, the outer terminating in a blackened spinous point, with a smaller denticle on the lower margin back from the tip; inner style subequal in length, obtuse to truncated at tip. Gonapophyses appearing as simple blackened curved spines, much shorter than the aedeagus.

A very surprising range in size, especially among the males, may be found even within a small series from a single place and date and evidently representing only one form. As an average, the males are larger than the corresponding females.

The distribution of *Trimicra* is very puzzling. There are apparently only two or three valid species but one of these, *pilipes* (Fabricius), has a vast range throughout the world, occurring on all the continents and likewise on some of the most remote islands. There are slight differences in venation, particularly in the length and course of vein *2nd A*, and likewise minor distinctions in the structure of the male hypopygium but it is exceedingly difficult to define subspecies. Until more is known I am placing certain of the more well-marked forms as races. How the species *pilipes* attained its present almost unparalleled range remains very much in question. The immature stages occur in wet earth near water bodies and it does not seem probable that the species could have been spread by commerce, such as by the whaling vessels of early days that undoubtedly touched at some of the subantarctic islands where the subgenus has been found.

List of Subspecies

pilipes andensis (Alexander). — Peru; Argentina.

p. anomala (Osten Sacken). — Mexico; Nearctic.

p. apoecila (Philippi). — Chile.

p. obscurata (Blanchard). — Chile.

p. reciproca (Walker). — Argentina.

p. trichopus (Philippi). — Chile.

Some of the above, particularly those listed from Chile, will undoubtedly prove to be synonyms.

Subg. *Empedomorpha* Alexander

Empedomorpha Alexander; Proc. Acad. Nat. Sci. Philadelphia 1916: 507-508, fig. 40; 1916; (type *empedoides* Alexander).

A group that includes only two known species, one within our faunal limits. I am placing it as a subgenus of *Erioptera* chiefly because of the somewhat evident relationships with *Trimicra*. In both groups a surprising difference in size of male

specimens is found, as discussed under *Trimicra*. Very striking is the sexual dimorphism, evidenced by the greatly dilated hairy stigma of the male, with an accompanying distortion of the venation in the radial field of the wing. (Fig. 14, *apacheana*). The wings and venation in the female are quite normal and ordinary. The basic plan of structure of the male hypopygium is the same in the two known species. The two dististyles are terminal in position; inner gonapophyses appear as slender rods, each bearing a blackened lateral spine.

Erioptera (*Empedomorpha*) *apacheana* Alexander occurs in northern Mexico (Nuevo Leon); the second species is more widely distributed over the arid and semi-arid regions of the western United States. The distinctions between the subgenotype, *empedoides* (Alexander, 1916) and *apacheana* Alexander, 1946, have been described and figured by the writer (Amer. Midl. Nat., 35: 527-529, figs. 25, 26; 1946).

Subg. *Eriopterella* Alexander

Erioptera (*Eriopterella*) Alexander; Diptera of Patagonia and South Chile, 1: 196-197; 1929; (type *jaffueli* Alexander).

The subgenus is much as in *Erioptera*, differing especially in the venation. *Rs* of moderate length, angulate at origin; cell 1st M_2 closed; *m-cu* at near two-thirds the length of the long cell 1st M_2 , the distal section of Cu_1 only about one-half longer than *m-cu*; vein 2nd *A* only moderately long, gently sinuous, cell 1st *A* at margin about three times cell *Cu*. (Fig. 15, *jaffueli*).

Male hypopygium with the ninth tergite extended caudad into a median triangular lobe that terminates in a slender point. Basistyles relatively stout. Outer dististyle a pale flattened blade, on its outer margin near midlength with a nearly hyaline fingerlike lobe that is tipped with a long seta, with a second seta on inner face. Inner dististyle a long slender chitinized rod, near its base on outer face with a much smaller and more slender branch. Aedeagus elongate.

The only known species is *Erioptera* (*Eriopterella*) *jaffueli* Alexander, of Chile (Fig. 15).

Subg. *Psilococonopa* Zetterstedt

Psilococonopa Zetterstedt; Ins. Lapponica, Dipt., p. 847; 1838; (type *meigenii* Zetterstedt). *Iliala* Rondani; Prodr. Dipterologiae Italicae, 1: 182; 1856; (type *maculata* Meigen). *Trichosticha* Schiner; Wien. Ent. Monats., 7: 221; 1863; (type *maculata* Meigen). *Erioptera* (*Acyphona*) Osten Sacken; Mon. Dipt. N. Amer., 4: 151; 1869; (type *venusta* Osten Sacken). *Erioptera* (*Hoptolabis*) Osten Sacken; Mon. Dipt. N. Amer., 4: 152; 1869; (type *armata* Osten Sacken).

Kowarzia Thallhammer; Fauna Regni Hungarici, Dipt., p. 19; 1899; (preoccupied by *Kowarzia* Mik, 1881); (type *grata* Loew).

The subgenus *Psiloconopa*, including *Ilisia* and *Hoplolabis* as above, is very characteristic of the Holarctic Region, with numerous species in both the Nearctic and Palaearctic Regions. Species that are very closely allied to the European *maculata* Meigen occur in the mountains of Central Africa and in the Austromalayan Region as far east as the mountains of New Guinea.

Psiloconopa, as now broadened by the inclusion of *Ilisia*, is still very close to the typical subgenus, particularly in those species that have cell M_2 of the wings open by the atrophy of m . Such species are distinguished chiefly by the short and nearly straight vein 2nd A. Many of the species have cell 1st M_2 closed (*maculata* group; *venusta* group; *areolata* group; *meigenii* group, and others) but several have it open. Many species that center about *maculata*, *venusta*, and *melampodia* have the wings handsomely patterned, often crossbanded or with ocelli-form markings. It should be noted that in this subgenus, the male hypopygium may be normal (*Psiloconopa* s. s.) or partially inverted (*Ilisia* s. s.).

A single species, *Erioptera (Psiloconopa) winthemi* Alexander, was described as being from Brazil, collected by Winthem, in the old collection of the Vienna Museum. This fly much resembles the *E. (P.) cinctipennis* Alexander, of western North America, or *E. (P.) melampodia* Loew, of Europe, and since no other representative of the subgenus has been taken in Brazil or in the entire Neotropics, it would seem that there is a distinct possibility of erroneous labelling.

Subg. *Empeda* Osten Sacken

Platytoma Lioy; Atti dell'Istituto Veneto, (3) 9. 226; 1863; (preoccupied by *Platytoma* Dejean, 1833; nom. nud.).
Empeda Osten Sacken; Mon. Dipt. N. Amer., 4: 183; 1869; (type *stigmatica* Osten Sacken).

Empeda is one of the larger and more characteristic groups of small crane-flies in Tropical America, particularly in mountainous sections. It is readily told from the other groups by the relative shortness of cell R_3 of the wings and the correspondingly lengthened vein R_{3-4} . In addition, the various species have the thoracic pleura almost bare and have a somewhat characteristic structure of the male hypopygium. (Fig. 17, *austronymphica*). The venation of the different species shows a

considerable range in the length of vein Sc and especially the position of Sc_2 . In most species this latter lies far distad so Sc_1 is very short, as compared with the other subgeneric groups, but there is a marked difference in various species in this subgenus. (Fig. 16, *ochricauda*).

Edwards (Trans. Soc. British Ent., 5: 117-119; 1938) has placed *Empeda* as a subgenus of *Cheilotrichia* Rossi but I prefer to consider all of these groups as representing subgenera of the major genus *Erioptera* Meigen.

The subgenus *Empeda* is widely distributed throughout the major regions of the world, being somewhat more abundant in species in the Mexican subregion. A few species, including the subgenotype, *stigmatica*, occur in the Nearctic Region while others occur as far south as northern Argentina. No species has been found in Chile. In the Old World the subgenus is well represented throughout the Palaearctic, with fewer species in the Ethiopian and Oriental Regions. In Australasia, species occur in New Guinea and a very isolated form in northern New Zealand, but as known to date no species are found in Australia. The group was represented by abundant species in the Baltic Amber (Lower Oligocene) and it should be noted that the basic structure of the male hypopygium was identical even at that remote date, at least 30,000,000 years ago. (See Alexander, Crane-flies of the Baltic Amber, Diptera; Bernstein-Forschungen, Heft 2: 105-111, figs. 138-146; 1931).

List of Species

- abitaguai* Alexander. — Ecuador.
- alticola* Alexander. — Mexico.
- austronymphica* Alexander. — Peru.
- basalis* (Alexander). — Northern Argentina.
- boliviana* Alexander. — Bolivia.
- coangustata* Alexander. — Ecuador.
- complicata* (Alexander). — Northern Argentina.
- curta* Alexander. — Mexico.
- deludens* Alexander. — Mexico.
- destituta* Alexander. — Peru.
- divaricata* Alexander. — Mexico.
- instrenua* Alexander. — Peru.
- longifurcata* Alexander. — Ecuador.
- longisquama* Alexander. — Southeastern Brazil.
- mayanymphica* Alexander. — Mexico.
- nigrolineata* (Enderlein). — Mexico, Guatemala, Costa Rica.
- nymphica* Alexander. — Jamaica.
- ochricauda* Alexander. — Mexico.
- oresitropa* Alexander. — Mexico.
- percupida* Alexander. — Peru.

- pubescens* Alexander. — Guatemala.
stygia Alexander. — Mexico, Costa Rica, Peru.
sutrina Alexander. — Panama.
tridentata Alexander. — Mexico.
unidentata Alexander. — Mexico.

Amphineurus Skuse

Amphineurus Skuse; Proc. Linn. Soc. New South Wales, (2) 4: 800; 1890; (type *umbraticus* Alexander).

Amphineurus is closely allied to the North Temperate genus *Ormosia* Rondani. Both groups have the wing membrane densely hairy and show still other points of resemblance yet seem to be generically distinct. The chief peculiarity of the venation in the typical subgenus is the unusual depth of cell M_3 which is usually, though not always, sessile, sometimes so broadly so as to produce a short element M_{1-2-3} ; vein R_{2-3-4} is distinct in the typical forms, in *extraordinarius* (Fig. 18) being shorter so cell R_3 is short-petiolate; *m-cu* lies at or before the fork of M ; vein 2nd A is moderately sinuous. In *castroensis*, cell 1st M_2 is closed.

Relatively numerous species occur in the Chilean subregion, elsewhere the genus being restricted to Australia and New Zealand. In the last-named subregion there are two somewhat peculiar and isolated subgeneric groups, *Nesormosia* Alexander and *Nothormosia* Alexander, the latter with rather numerous species. Members of the typical subgenus occur in Australia, New Zealand and in Chile. Most of the species in the latter country fall in the subgenus *Rhamphoneurus* Alexander (Diptera of Patagonia and South Chile, 1: 186-187, figs. 90, 223, *nothofagetorum*; fig. 224, *glabristylatus*; fig. 225, *sanus*; 1929), having most of the characters of the typical subgenus but with the rostrum elongate, as long as the head or even longer.

The still unknown *Erioptera* ? *longipes* Philippi, of South Chile, may belong to this genus but there are some points in the venation that do not agree with those in any of the more recently discovered species (as cell M somewhat longer than cell R , indicating that *m-cu* lies beyond the fork of M ; cell M_2 open by the atrophy of the basal section of M_3 ; cell 2nd M_2 petiolate). As indicated by me in the paper above cited, most of Philippi's types, including that of the present fly, seem to have been destroyed or mislaid and the identity of several critical species remains in question and may never be settled.

Nothing is known concerning the immature stages of *Amphi-*

neurus but the larval habitat is presumably in wet earth or organic mud, as is the case in the allied North Temperate genus *Ormosia* Rondani.

List of Species

Amphineurus, s. s.

castroensis Alexander. — South Chile.

extraordinarius Alexander. — South Chile.

Rhamponeurus Alexander (type *nothofagetorum* Alexander).

fuscifusus Alexander. — South Chile.

glabristylatus Alexander. — South Chile.

nothofagetorum Alexander. — South Chile, Patagonia.

sanus Alexander. — South Chile.

Maietta Alexander

Maietta Alexander; Diptera of Patagonia and South Chile, 1: 184-185, fig. 104 (venation); fig. 233 (male hypopygium); fig. 234 (ovipositor); 1929; (type *squamigera* Alexander).

A single very peculiar fly, *Maietta squamigera* Alexander, of South Chile, is included in this genus.

The chief venational peculiarities lie in the long arcuate basally directed vein R_2 and in the presence of only two medial veins. The legs and wings are provided with abundant scales, those of the latter being greatly flattened and longitudinally striate. The male hypopygium is peculiar, having the basistyles short and stout; two dististyles, the outer one a broad flattened pale lobe, the inner style a slender arcuated blackened rod, its tip narrowed into an acute black spine. Ovipositor likewise peculiar, the cerci appearing as compressed, nearly circular fleshy blades, the hypovalvae more elongate.

Molophilus Curtis

Molophilus Curtis; British Entomology, 10: 444; 1833; (type *brevipennis* Curtis = *ater* Meigen).

Archimolophilus Enderlein; Skottsberg's Nat. Hist. Juan Fernandez and Easter Isl., Zool. 3: 669; 1940; (type *selkirkianus* Enderlein).

A very large and characteristic group of small crane-flies, particularly well represented in Tropical America, especially at medium altitudes in mountainous sections. Three subgenera are represented in this area and will be discussed in proper order.

Dr. Alan Stone (Ann. Ent. Soc. America, 34: 407; 1941) has called attention to the fact that the name *Molophilus* Curtis, 1833, is unavailable and will fall as a synonym of *Erioptera*

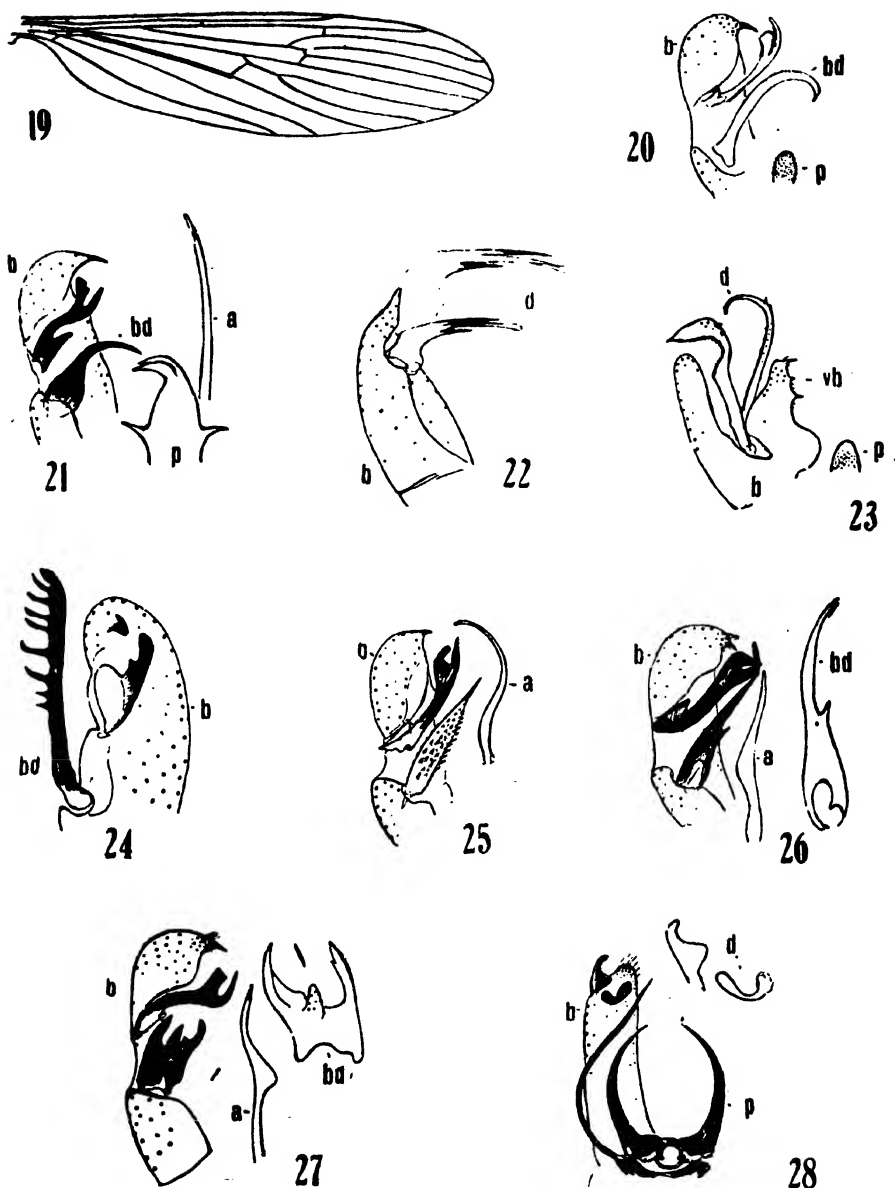


Fig. 19. *Molophilus (Molophilus) persinuosus* Alexander; venation. — Fig. 20. *Molophilus (Molophilus) bierigi* Alexander; male hypopygium. — Fig. 21. *Molophilus (Molophilus) cautus*, sp. n.; male hypopygium. — Fig. 22. *Molophilus (Molophilus) pacifer monostylus* Alexander; male hypopygium. — Fig. 23. *Molophilus (Molophilus) pectinatus* Alexander; male hypopygium. — Fig. 24. *Molophilus (Molophilus) raptor*, sp. n.; male hypopygium. — Fig. 25. *Molophilus (Molophilus) subtratus*, sp. n.; male hypopygium. — Fig. 26. *Molophilus (Molophilus) tridigitatus*, sp. n.; male hypopygium. — Fig. 27. *Molophilus (Molophilus) tentator*, sp. n.; male hypopygium. — Fig. 28. *Molophilus (Trichomolophilus) tentator*, sp. n.; male hypopygium. (Symbols: a, aedeagus; b, basistyle; bd, basal dististyle; d, dististyle; vb, ventral lobe of basistyle; p, phallosome).

Meigen, 1803 (*Polymeda* Meigen, 1800). Curtis clearly defined the genus and designated the type. However, in 1849 Blanchard had chosen as type of *Erioptera* Meigen the species *Erioptera grisea* Meigen and by mere chance this happens to be the only one of the originally included species of *Erioptera* that falls in *Molophilus*. This choice of type of *Erioptera* has brought about a most regrettable situation. The genus *Molophilus*, as here retained, is one of the largest in the Tipulidae, with more than 400 known species and has been recognized and unquestioned for more than a century. For these reasons it would seem advisable to retain it and perhaps the name could be conserved by requesting a suspension of the rules of the International Code on behalf of *Molophilus*.

The venation of the genus is characteristic (Fig. 19, *persinuosus*). Both R_{2-3} and R_{4-5} are present as distinct elements so that cell R_3 is sessile instead of petiolate, as in most other Eriopteraria. This feature alone virtually suffices to distinguish the genus. In addition, M is in direct longitudinal alignment with M_{1-2} , vein M_{3-4} leaving M at a strong angle; cell M_3 is deep to very deep, its petiole (M_{3-4}) correspondingly shortened; Anal veins commonly convergent. Wing-cells glabrous in the local species.

Male hypopygium (various species figured, Figs. 20-27, inclusive) inverted, twisted to a full 180° so the tergite occupies a ventral position. The ventral lobe of the basistyle of the hypopygium in the so-called *plagiatus* group is produced into a sclerotized point or beak of various shapes. Commonly there are two dististyles, an outer bifid one and a more proximal one that has been called the *basal dististyle*. This latter structure provides the most important taxonomic characters for the separation of the numerous species in the group. A median basal plate, the so-called *phallosomic plate* seems to represent the fused gonapophyses in this genus. The two chief groups of species in our fauna were described and figured by the writer (Ann. Mag. Nat. Hist., (9) 19: 16-17; (9) 19: 177; (0) 20: 33; 1927). Besides the two chief groups, the *plagiatus* and *gracilis-ruficollis* groups, there is one further isolated one, the so-called *monostylus* group (Fig. 22, *monostylus*) including a single known species.

As indicated by the accompanying list, *Molophilus* is unusually well-distributed throughout Tropical America, particularly at medium to high altitudes (2000-10,000 feet). Elsewhere in the world the *plagiatus* group includes many species

in Australia and New Zealand, with fewer scattered species in outlying satellite islands, as New Caledonia and New Guinea. The numerous species in the New World apparently have attained their present distribution via the Antarctic land connection, most of the species being Neotropical but with about eight further species extending northward into the Nearctic Region. It should be noted that species of this group seem to be lacking in the Palaearctic Region. The *gracilis* group centers in Australia, with many further representatives throughout the Palaearctic Region, including many in Europe. In Tropical America there are relatively few known species, most numerous in the Chilean Subregion, and evidently these too have been derived from the Australasian center via Antarctica.

The immature stages of *Molophilus*, as known, live in wet earth, often near streams.

List of Species

- anerasta* Alexander. — Panama.
- appressus* Alexander. — Patagonia.
- araucanus* Alexander. — South Chile.
- armatistylus* Alexander. — South Chile, Patagonia.
- ascendens* Alexander. — Southeastern Brazil.
- bellicosus* Alexander. — Argentina, Chile.
- bellona* Alexander. — Mexico.
- bicaudatus* Alexander. — Patagonia.
- bidigitatus* Alexander. — Southeastern Brazil.
- bierigi*, sp. n. — Costa Rica.
- brevilobatus* Alexander. — South Chile.
- breviramus* Alexander. — Patagonia.
- brevispinosus* Alexander. — South Chile, Patagonia.
- brownianus* Alexander. — Ecuador.
- bruchi* Alexander. — Argentina.
- caenosus* Alexander. — Southeastern Brazil.
- calceatus* Alexander. — South Chile.
- capricornis* Alexander. — Colombia.
- catamarcensis* Alexander. — Argentina.
- cautus*, sp. n. — Southeastern Brazil.
- cervus* Alexander. — Patagonia.
- chiriquensis* Alexander. — Panama.
- cladocerus* Alexander. — Argentina.
- clavigerus* Alexander. — Patagonia.
- colossus* Alexander. — South Chile, Patagonia.
- conscriptus* Alexander. — Colombia.
- debiliior* Alexander. — Ecuador.
- debilistylus* Alexander. — Southeastern Brazil.
- diceros* Alexander. — Chile.
- dido* Alexander. — Venezuela.
- dirhabda* Alexander. — Southeastern Brazil.
- dirus* Alexander. — Peru.
- drepanucha* Alexander. — South Chile, Patagonia.

- ductilis* Alexander. — Mexico.
emarginatus Alexander. — Southeastern Brazil.
facinus Alexander. — Venezuela.
fagetorum Alexander. — Patagonia.
falx Alexander. — Mexico.
flavidus Alexander. — Chile, Patagonia.
flexilistylus Alexander. — Colombia.
fuscopleuralis Alexander. — Mexico.
gargantua Alexander. — Peru.
gomesi Alexander. — Southeastern Brazil.
grus Alexander. — Peru.
guatemalensis Alexander. — Guatemala.
gymnocladus Alexander. — Chile.
haagi Alexander. — Mexico.
honestus Alexander. — Argentina.
hyperarmatus Alexander. — Chile.
hystrix Alexander. — Southeastern Brazil.
illectus Alexander. — Panama.
inarmatus Alexander. — Chile.
incognitus Alexander. — Mexico.
inflexibilis Alexander. — Patagonia.
integristylus Alexander. — Southeastern Brazil.
lanei Alexander. — Southeastern Brazil.
laterospinosus Alexander. — Patagonia.
lauri Alexander. — Southeastern Brazil.
lerionis Alexander. — Southeastern Brazil.
lictor Alexander. — Colombia.
luxuriosus Alexander. — Colombia.
marthae Alexander. — Colombia.
miraculus Alexander. — Mexico.
monostylus Alexander. — Chile.
obediens Alexander. — Mexico.
orion Alexander. — Costa Rica.
othello Alexander. — Peru.
pacifer Alexander. — Costa Rica.
paganus Alexander. — Peru.
pala Alexander. — Peru.
pallatangensis Alexander. — Ecuador.
pallidus (Philippi). — Chile (genus dubia)
panchrestus Alexander. — Peru.
paraguayensis Alexander. — Paraguay.
paucispinosus Alexander. — Mexico.
pectinatus Alexander. — Chile.
penicillatus Alexander. — Peru.
pennatus Alexander. — Mexico.
perdebilis Alexander. — Peru.
perfidus Alexander. — Argentina, Chile.
perseus Alexander. — Colombia.
persinuosus Alexander. — Peru.
phallosomicus Alexander. — Southeastern Brazil.
piger Alexander. — Peru.
pirioni Alexander. — Patagonia, Chile.
p. omissus Alexander. — Patagonia, Chile.
platyphallus Alexander. — Ecuador.
pretiosus Alexander. — South Chile.
procax Alexander. — Mexico.

pulvinus Alexander. — Peru.
pustulatus Alexander. — Mexico.
quadristylus Alexander. — Brazil.
raptor, sp. n. — Southeastern Brazil.
remiger Alexander. — Brazil.
retrorsus Alexander. — Mexico.
richardsi Alexander. — Patagonia, Chile.
rubidithorax Alexander. — Argentina, Chile.
sagax Alexander. — Mexico.
sagittarius Alexander. — Peru.
scabricornis Alexander. — Southeastern Brazil.
schultzei Alexander. — Mexico.
selkirkianus (Enderlein). — Chile: Juan Fernandez.
serrulatus Alexander. — Chile.
severus Alexander. — Mexico.
shannoninus Alexander. — Argentina.
sicarius Alexander. — Peru.
s. partitus Alexander. — Peru.
stenopterus Alexander. — Chile.
stylifer Alexander. — Argentina.
subappressus Alexander. — South Chile.
subfalcatus Alexander. — Venezuela.
subiratus, sp. n. — Southeastern Brazil.
sublictor Alexander. — Costa Rica.
subsagax Alexander. — Mexico.
substylifer Alexander. — Argentina.
subtenebricosus Alexander. — Colombia.
talamancensis, sp. n. — Costa Rica.
taurus Alexander. — South Chile.
telerhabda Alexander. — Mexico.
tenebricosus Alexander. — Colombia.
ternarius Alexander. — Patagonia.
tetracanthus Alexander. — Patagonia.
titan Alexander. — South Chile.
tridigitatus, sp. n. — Southeastern Brazil.
triparcus Alexander. — Southeastern Brazil.
tucumanus Alexander. — Argentina.
uniformis (Blanchard). — Chile.
walkeri Alexander. — Colombia.

Subg. *Eumolophilus* Alexander

Molophilus (*Eumolophilus*) Alexander; Proc. Acad. Nat. Sci. Philadelphia, 1921: 72; 1921; (type *thaumastopodus* Alexander). 4

Characters as in *Molophilus*, s. s. Tibiae and basitarsi of hind legs in both sexes adorned with conspicuous erect fringes of long dark hairs that give to the legs a fanlike or oarlike appearance. Male hypopygium with the phallosomic plate lyriform.

The species included in this group bear a most remarkable resemblance to mosquitoes of the genus *Sabethes*.

List of Species

- angustior* Alexander. — Southeastern Brazil.
pennipes Alexander. — Amazonian Brazil.
sabethoides Edwards. — Southern Brazil: Mato Grosso.
thaumastopodus Alexander. — Amazonian Brazil.

Subg. *Trichomolophilus* Alexander

Molophilus (*Trichomolophilus*) Alexander; Ann. Ent. Soc. America, 29: 768; 1936;
 (type *multisetosus* Alexander).

Characters much as in *Eumolophilus*. Wing-cells with numerous macrotrichia. Venation: Cell R_3 short-petiolate by the presence of a short element R_{2-3-4} ; R_2 subequal to R_{2-3} ; fork of M symmetrical, the basal deflection of M_{1-2} not in direct longitudinal alignment with M , as in *Molophilus* and *Eumolophilus*; cell 1st M_2 closed. Legs with conspicuous erect setae forming conspicuous paddles, best developed on the posterior tibiae, as in *Eumolophilus*. Fore femora and tibiae very short, taken together shorter than the basitarsi. Male hypopygium with four basal elements, the inner pair, at least, pertaining to the phallosome. See Revista de Entomologia, 13: 437, fig. 20 (*celator*, ♂ hypopygium), fig. 21 (*multisetosus*, ♂ hypopygium). The hypopygium of *tentator*, sp. n., Fig. 28.

List of Species

- celator* Alexander. — Southeastern Brazil.
multisetosus Alexander. — Southeastern Brazil.
tentator, sp. n. — Southeastern Brazil.

Molophilus (*Molophilus*) *bierigi*, sp. n.

Belongs to the *plagiatus* group; allied to *anerasta*; general coloration dark brown, the humeral region of the praescutum brightened; antennae (male) elongate, nodulose; halteres obscure yellow; legs brownish black; wings with a strong blackish tinge, R_{2-3} long, about two and one-half times R_{4-5} ; male hypopygium with the beak of the basistyle slender, blackened; basal dististyle a strong simple blackened rod, evenly curved, the apex narrowed into a strong more decurved spine; outer margin of style with microscopic serrulations; phallosomic plate oval, with delicate setulae.

Male. — Length, about 4 mm.; wing, 4.5 mm.; antenna, about 2 mm.

Rostrum and palpi black. Antennae (male) elongate, as shown by the measurements, black throughout; flagellar segments

more or less fusiform, with glabrous apical necks, the dilated basal two-thirds with whorls of very long verticils. Head brownish gray.

Pronotum and pretergites chiefly light yellow. Mesonotum and pleura almost uniformly dark brown, the humeral triangles obscure brownish yellow. Halteres obscure yellow. Legs with the coxae and trochanters yellow; remainder of legs brownish black. Wings with a strong blackish tinge, the veins and trichia even darker. Venation: R_2 lying far beyond the level of $r-m$, R_{2-3} about two and one-half times R_{4-5} ; $m-cu$ sinuous, about one-half the petiole of cell M_3 ; vein $2nd\ A$ long and sinuous, ending about opposite midlength the petiole of cell M_3 .

Abdomen brownish black throughout. Male hypopygium (Fig. 20) with the beak of the basistyle, b , slender, blackened. Outer dististyle with the arms unequal, the longer one more slender. Basal dististyle, bd , distinctive, appearing as a strong simple blackened rod, evenly curved, the apex more blackened and rather abruptly narrowed into a slightly decurved spine; outer margin of style on distal half with microscopic serrulations. Phallosomic plate oval, with delicate setulae. Aedeagus long and relatively slender.

Habitat: Costa Rica.

Holotype, ♂, San Pedro de Montes de Oca, March 18, 1941 (Alexander Bierig). Paratopotypes, ♀ ♀.

I am very pleased to name this fly for the collector, Mr. Alexander Bierig, coleopterist and Federal Entomologist. Among the various species of somewhat similar general appearance and having elongate nodulose antennae in the male, including *Molophilus (Molophilus) anerasta* Alexander, *M. (M.) falcatus* Alexander, *M. (M.) subfalcatus* Alexander, *M. (M.) tenebricosus* Alexander, and *M. (M.) subtenebricosus* Alexander, the present fly is most similar to *anerasta*, differing in the structure of the male hypopygium and in other details.

Molophilus (Molophilus) cautus, sp. n.

Belongs to the *plagiatus* group; general coloration brownish gray, the humeral region of praescutum more brightened; antennae short; halteres strongly infuscated; legs brownish black; wings dusky, the veins and trichia dark; vein R_2 lying some distance before level of $r-m$; male hypopygium with the basal dististyle a heavily blackened curved rod; phallosomic structure a blackened plate that is divided at near midlength into two arms that extend into points; sides of plate near base bearing a conspicuous erect spine.

Male. — Length, about 2.8-3 mm.; wing, 3.4-3.8 mm.; antenna, about 0.7-0.8 mm.

Female. — Length, about 3.8-4 mm.; wing, 4-4.3 mm.

Rostrum and palpi black. Antennae with the scape and pedicel black, flagellum brownish yellow to pale brown; antennae short; flagellar segments oval with long verticils. Head brownish gray.

Mesonotum brownish gray, the humeral region of praescutum conspicuously yellow; interspaces obscure brownish yellow; pleura brownish gray. In some individuals, the praescutal pattern and yellow humeral areas are much more conspicuous than in others. Halteres strongly infuscated, the base of stem yellow. Legs with the coxae and trochanters testaceous brown; remainder of legs dark brown to brownish black. Wings dusky, the veins and macrotrichia darker to give a blackish appearance to the wings. Venation: R_2 lying some distance before level of $r-m$, vein R_{4-5} thus unusually long; $m-cu$ oblique, approximately one-half the petiole of cell M_3 or longer; vein 2nd A relatively short, ending about opposite the caudal end of $m-cu$.

Abdomen, including hypopygium, dark brown. Ovipositor and genital shield yellowish brown. Male hypopygium (Fig. 21) with the beak of the basistyle long and slender, black. Outer dististyle heavily blackened, unequally bifid at apex, the outer arm broad, the inner one slender and spinelike. Basal dististyle, bd , a heavily blackened curved rod, broad at base, narrowed to the acute tip, before apex with two or three setigerous punctures. Phallosome, p , a blackened plate that divides at near midlength into two flattened arms extending into acute points; on side of plate before the fork with a conspicuous erect spine. Aedeagus slender.

Habitat: Southeastern Brazil.

Holotype, ♂, Ferraz Vasconcelos, São Paulo, August 1946 (John Lane). Allotopotype, ♀. Paratopotypes, 2 ♂ ♀; paratypes, Angra dos Reis, Rio de Janeiro, altitude 50 meters, July 9, 1946 (Lauro Travassos Filho); ♂, Boracea, São Paulo, altitude 900 meters, April 13, 1942 (d'Almeida, Travassos Filho); ♂, Campos do Jordão, São Paulo, altitude 1600 meters, December 1945 (John Lane).

The present fly requires no comparison with other regional species, being quite distinct in the structure of the male hypopygium, especially the phallosome. Other somewhat similar species having this structure

modified from the normal type, as *Molophilus (Molophilus) phallosomicus* Alexander, *M. (M.) scabricornis* Alexander, and others, are not closely allied.

Molophilus (Molophilus) monostylus Alexander

Molophilus monostylus Alexander; Ent. News, 39: 182; 1928.

The type was from Concepcion, Chile, October 13, 1927 (Jaffuel & Pirion). Male hypopygium (Fig. 22). Basistyle, *b*, produced at apex into a small darkened lobe that bears two long delicate setae. A single dististyle, *d*, subapical in position, on outer half of basistyle; dististyle unequally trifid, consisting of a stout base that divides into three arms, a long darkened outer spine, a still longer central arm with the tip obtuse, and a short spikelike inner spine that is only about one-third as long as the outer. Aedeagus long and slender, somewhat dilated before the tip.

Molophilus (Molophilus) pacifer Alexander

Molophilus (Molophilus) pacifer Alexander; Journ. N. Y. Ent. Soc., 55 (In press).

The type was from Higuito, San Mateo, Costa Rica, collected by Pablo Schild. The male hypopygium was described in detail in the original definition but had not been figured. Fig. 23.

Molophilus (Molophilus) pectinatus Alexander

Molophilus pectinatus Alexander; Rev. Chilena Hist. Nat., 31: 220-221; 1927.

The types were from the valley of Marga-Marga, Chile, September 14-19, 1927 (Jaffuel & Pirion). The rather remarkable male hypopygium had not previously been figured (Fig. 24). Beak of the basistyle, *b*, short and unusually stout, blackened, the lower margin microscopically serrulate or roughened. Outer dististyle of distinctive shape, nearly simple, with a small accessory tooth at near midlength. Basal dististyle, *bd*, a long straight rod, with about ten erect blackened pectinations, all secund or on a single face, producing a comblike appearance; terminal two branches broader and flatter; intermediate series longest, bent slightly outward near tips; basal two branches shorter and more spinelike.

Molophilus (Molophilus) raptor, sp. n.

Belongs to the *plagiatus* group; mesonotum light brown, the pleura darker brownish gray; antennae (male) moderately long; halteres yellow; legs light brownish yellow, the outer tarsal

segments darkened; wings brownish yellow; male hypopygium with the basal dististyle a strong straight rod that narrows into a very long apical spine; surface of style with abundant spinous points and tubercles over most of the surface, those of the lower face longest, subappressed.

Male. — Length, about 4.5 mm.; wing, 5 mm.

Rostrum dark brown; palpi black. Antennae (male) of moderate length; flagellar segments oval, with conspicuous verticils. Head brownish gray.

Thoracic notum almost uniformly light brown, without evident pattern; praescutal setae black. Pleura darker brownish gray. Halteres yellow. Legs with the coxae and trochanters yellow; remainder of legs light brownish yellow, the outer tarsal segments brownish black; no modified ring or glandular area on fore tibia. Wings with a brownish yellow tinge, the prearcular and costal regions clearer yellow; veins yellow, macrotrichia darker. Venation: R_2 lying immediately beyond the level of $r-m$; $m-cu$ about four-fifths as long as the petiole of cell M_3 ; vein 2nd A ending about opposite the cephalic end of $m-cu$.

Abdomen slightly darker brown than the mesonotum; hypopygium obscure yellow. Male hypopygium (Fig. 25) with the beak of the basistyle, b , moderately stout, blackened, the surrounding portion darkened. Outer dististyle unequally bifid at apex. Basal dististyle distinctive, appearing as a strong straight rod that narrows into a very long slender apical spine; surface of style with abundant subappressed black spines of various sizes, those of the lower or inner face longest, of the outer face very reduced; no setae, as in *lanei*. Phallosomic plate small, glabrous, apparently terminating in two slightly separated points. Aedeagus, a , elongate, sinuous.

Habitat: Brazil (São Paulo).

Holotype, ♂, Campos do Jordão, altitude 1600 meters, December 1945 (John Lane).

The most similar regional species is *Molophilus (Molophilus) lanei* Alexander, which differs conspicuously in the structure of the male hypopygium, especially the basal dististyle, with its conspicuous fringe of elongate setae.

Molophilus (Molophilus) subiratus, sp. n.

Belongs to the *plagiatus* group; anterior region of mesonotum brown, the posterior sclerites uniformly darker brown; pleura dark brown; antennae short; halteres uniformly pale yellow; legs obscure yellow, the outer tarsal segments brown; wings brownish

yellow; male hypopygium with the basal dististyle a long blackened rod, virtually straight, narrowed very gradually into an acute spine, at near midlength bearing a small acute thorn but with no basal spine.

Male. — Length, about 3.5 mm.; wing, 4 mm.; antenna, about 1.2 mm.

Rostrum and palpi black. Antennae relatively short; scape and pedicel obscure yellow, flagellum brown; flagellar segments long-oval, with a dense pale pubescence, additional to the long single unilaterally arranged verticils. Head brown.

Pronotum dark in front, the scutellum, pretergites and humeral triangle of the praescutum pale yellow; remainder of mesonotum brown, the posterior sclerites still darker brown, with no brightening on either the scutum or the scutellum. Pleura dark brown. Halteres uniformly pale yellow. Legs with the coxae and trochanters yellow, the fore coxae a trifle darker; remainder of legs obscure yellow, the outer tarsal segments brown. Wings with a brownish yellow suffusion, the prearcular and costal fields clearer yellow; veins dark yellow; macrotrichia pale brown. Venation: R_2 about in transverse alignment with $r-m$; $m-cu$ about four-fifths the petiole of cell M_3 ; vein 2nd A ending about opposite the cephalic end of $m-cu$.

Abdomen dark brown, including the hypopygium, the eighth segment paler. Male hypopygium (Fig. 26) with the beak of the basistyle, b , stout and densely setiferous proximally, the apex very slender. Outer dististyle blackened, bifid at apex, the two arms very dissimilar, the outer one flattened, bent strongly laterad into a point, the inner arm a slender rod. Basal dististyle, bd , a long blackened rod, virtually straight, narrowed very gradually into an acute spine, at near midlength bearing a small acute thorn; no basal spine; surface of style virtually glabrous, with a single puncture about opposite the spine. Aedeagus, a , dilated at about midlength.

Habitat: Southeastern Brazil (Santa Catharina).

Holotype, ♂, Nova Teutonia, September 21, 1944 (Fritz Plaumann).

Although superficially much like *Molophilus* (*Molophilus*) *tridigitatus*, sp. n., the present fly is undoubtedly closer to *M. (M.) emarginatus* Alexander, from which it differs in the structure of the male hypopygium, especially of the basal dististyle, as described.

Molophilus (Molophilus) talamancensis, sp. n.

Belongs to the *plagiatus* group; size relatively large (wing, male, 5.8 mm.); antennae short; general coloration dark gray, the pretergal region of the thorax light yellow; antennae and legs brownish black to black; halteres brownish yellow; male hypopygium with the basal dististyle a strong simple blackened horn, strongly dilated at base, very gradually narrowed to the unusually long apical spine; phallosomic plate glabrous.

Male. — Length, about 5 mm.; wing, 5.8 mm.; antenna, about 1.5 mm.

Rostrum and palpi black. Antennae (male) black throughout, relatively short; flagellar segments oval to long-oval, with a delicate white pubescence and long unilaterally distributed verticils, the latter exceeding twice the length of the segments. Head black, brownish gray pruinose.

Pronotum obscure orange, more or less pruinose; pretergites and lateral ends of pronotum light yellow. Mesonotum and pleura dark gray; dorsopleural region restrictedly paler. Halteres obscure brownish yellow. Legs with the coxae and trochanters yellowish brown to brown, the fore coxae somewhat darker; remainder of legs brownish black. Wings with a strong grayish tinge, the prearcular and costal fields slightly more yellowed; stigma brown, small, at and beyond the end of vein *Sc*; veins brown, more yellowish brown in the brightened fields. Venation: *R*₂ lying a little distad of *r-m*; *m-cu* sinuous, nearly two-thirds as long as the petiole of cell *M*₃; vein 2nd *A* strongly sinuous, ending a short distance beyond the outer end of *m-cu*.

Abdomen, including hypopygium, dark brown. Male hypopygium with the beak of basistyle relatively deep, with a slight protuberance on outer margin before the acute distal portion; surface of style surrounding the beak with a concentration of long yellow setae. Outer dististyle with the outer arm slightly expanded; the inner one more acute. Basal dististyle a strong simple blackened horn, strongly dilated at base, very gradually narrowed to the unusually long apical spine; surface with small scattered punctures. Phallosomic plate oval, glabrous.

Habitat: Costa Rica.

Holotype, ♂, El Muerte, Cordillera Talamanca, altitude 10,500 feet, May 20, 1946 (F. Martin Brown).

Despite the short antennae of the male sex, the present fly is most similar to species such as *Molophilus (Molophilus) falx* Alexander, *M. (M.) subfalcatu*s Alexander, *M. (M.) tenebricosus* Alexander, *M. (M.)*

subtenebricosus Alexander, and others, these having the male antennae elongate and with the vestiture of the same distinct. The details of the hypopygium in the present fly are likewise distinct.

Molophilus (Molophilus) tridigitatus, sp. n.

Belongs to the *plagiatus* group; mesonotum chiefly medium brown, the pleura almost uniformly dark brown; antennae short; halteres pale yellow; wings with a yellowish tinge; male hypopygium with the basal dististyle a massive blackened structure that divides at apex into three principal arms or points.

Male. — Length, about 4 mm.; wing, 4.4 mm.

Female. — Length, about 4.5 mm.; wing, 4.3 mm.

Rostrum and palpi black. Antennae relatively short, if bent backward extending to shortly beyond the wing-root; scape and pedicel yellow, flagellum brown; flagellar segments long-oval, with elongate verticils and an erect white pubescence. Head obscure orange.

Pronotum above, pretergites and humeral region of praescutum very pale yellow; remainder of mesonotum medium brown, the praescutum vaguely trivittate with this color; median region of scutum and the posterior border or scutellum obscure yellow; postnotum dark brown, the suture between mediotergite and pleurotergite yellow. Pleura almost uniformly dark brown; in male with a paler spot on mesepimeron; sternum paler. Halteres uniformly pale yellow. Legs with coxae yellow, the fore pair a trifle darker; trochanters yellow; remainder of legs yellow, the outer tarsal segments more infuscated. Wings with a yellowish tinge, the prearcular and costal fields somewhat clearer yellow; veins obscure yellow, macrotrichia very pale brown. Venation: R_2 lying shortly beyond the level of $r-m$; petiole of cell M_3 about one-fifth longer than $m-cu$; vein 2nd A long, ending about opposite one-third the length of the petiole of cell M_3 .

Abdomen dark brown; hypopygium brownish yellow. Male hypopygium (Fig. 27) with the beak of basistyle, *b*, stout, proximal portion setiferous, the outer half slender. Outer dististyle unequally bifid at apex, the outer arm truncated at tip, the inner one slender. Basal dististyle, *bd*, distinctive, appearing as a massive blackened structure that divides at apex into three principal arms or points, the outermost microscopically roughened on outer face; intermediate spine with scattered setiferous punctures. Phallosomic structure a bilobed setiferous pale cushion. Aedeagus, *a*, strongly dilated beyond midlength.

Habitat: Southeastern Brazil (Santa Catharina).

Holotype, ♂, Nova Teutonia, September 21, 1944 (Fritz Plaumann). Allotopotype, ♀, pinned with type.

The only regional species so far described that are at all similar to the present fly are *Molophilus (Molophilus) bidigitatus* Alexander and *M. (M.) triparcus* Alexander, which have the details of the male hypopygium, especially of the basal dististyle, quite distinct.

Molophilus (Trichomolophilus) tentator, sp. n.

General coloration of thorax black, sparsely pruinose, the praescutum with three conspicuous black stripes; antennae (male) relatively short; legs with very conspicuous hair fringes, especially on the femora, tibiae and fore basitarsi, the last elongate; male hypopygium with the basistyle slender; both phallosomic rods unusually long, especially the lateral pair.

Male. — Length, about 4 mm.; wing, 4.6 mm.

Rostrum and palpi black. Antennae with scape and pedicel black; basal flagellar segments dark brown; antennae broken beyond the fifth segment but evidently short, the basal three flagellar segments short-cylindrical, with long verticils. Head dark brown, with scattered black bristles and appressed procumbent white setae on posterior portion.

Pronotum dark brown, the scutellum • obscure yellow. Mesonotum black, sparsely pruinose; praescutum with three conspicuous black stripes on a dark gray ground, median stripe narrow, on cephalic fourth of sclerite bordered on either side by lighter gray; interspaces with a few long and conspicuous erect black setae and appressed whitish ones. Pleura and pleurotergite black, sparsely pruinose; dorsopleural region more buffy. Halteres broken. Legs with the coxae dark brown; trochanters obscure yellow; remainder of legs with conspicuous hair fringes or brushes, most conspicuous on the femora, tibiae and fore basitarsi; ground color of legs yellow, the terminal tarsal segments black; setae black, conspicuous, especially on posterior tibiae; fore basitarsi longer than the tibiae or the remainder of tarsal segments combined; middle and hind basitarsi much shorter, about one-third the tibia. Wings with the ground light brown or yellowish brown, the surface obscured by abundant dark-colored setae over the entire membrane; veins light brown or yellowish brown. Venation: R_{2-3-4} preserved as a short element that is subequal in length to the basal section of R_5 or $r-m$; R_{2-3} longer, nearly erect, so all elements of the anterior cord

are in approximate transverse alignment; cell 1st M_2 apparently closed; *m-cu* at fork of *M*; vein 2nd *A* relatively short, ending some distance before the level of *m-cu*.

Abdomen black, the hypopygium paler, brownish yellow. Male hypopygium (Fig. 28) with the basistyle, *b*, very long and slender, both dististyles, *d*, apical, narrow, the more basal one strongly arcuate, its outer end an oval club. Both sets of phallosomic rods, *p*, unusually long, the lateral pair (possibly a basal dististyle, from its position) unusually long and very slender, gently sinuous, extending caudad to opposite the level of the outer dististyle.

Habitat: Southeastern Brazil (Rio de Janeiro).

Holotype, a fragmentary ♂, mostly on a slide, Sitio Bonfim, Nova Friburgo, Serra dos Orgãos, altitude 1000 meters, November 8, 1945 (Petr Wygodzinsky); resting on a leaf, in appearance much like a spider. Later, some further paratypic males were received.

The present fly differs from the two previously described members of the subgenus *Trichomolophilus*, *celator* Alexander and *multisetosus* Alexander, in the details of coloration and, especially, in the structure of the male hypopygium. In this latter respect, it is closest to *celator* but here the basistyles and the outer phallosomic rods are longer and more slender. The hair fringes on the legs appear to be longer and more conspicuous than in the other species but this may not represent a true condition. Our knowledge of species of this subgenus is still very insufficient.

Tasiocera Skuse

Tasiocera Skuse; Proc. Linn. Soc. New South Wales (2) 4: 815; 1890; (type *tenulicornis* Skuse).

Subg. *Dasymolophilus* Goetghebuer

Molophilus (*Dasymolophilus*) Goetghebuer; Bull. Soc. Ent. Belgique, 2: 132, fig.; 1920; (type *murina* Meigen).

A single species, *brevicornis* Alexander, occurs in the Chilean subregion. Elsewhere the few known members are Holarctic, evenly distributed over the entire area, with species in Europe; China, Japan and Formosa; western United States; eastern United States.

The genus is distinguished by the venation and by the presence of scattered macrotrichia in the outer wing cells. It should be noted that this latter character of hairy wings is not entirely diagnostic there being a few species of *Molophilus* that have even more abundant trichia in the cells. The fundamental

plan of the male hypopygium, that is, a single dististyle present, is of generic value but here again there are species of *Molophilus* that have such a character. These include *Molophilus (Molophilus) monostylus* Alexander, discussed earlier (Fig. 22), as well as various species in New Guinea.

Styringomyia Loew

Styringomyia Loew; Dipt. Beltr., 1: 6; 1845; (type *venusta* Loew).

Styringia Berendt; Die im Bernstein befindlichen organischen Resten der Vorwelt, 1: 57; 1845; (no type).

Idiophlebia Grünberg; Zool. Anzeig., 26: 524-528, figs.; 1903; (type *didyma*, as *pallida* Grünberg).

Pycnocrepis Enderlein; Zool. Jahrb., 32, pt. 1: 65, figs.; 1912; (type *annulipes* Enderlein).

Mesomyites Cockerell; Proc. U. S. Nat. Mus., 52: 377, fig.; 1917; (type *concinna* Cockerell).

A very isolated group that had earlier (Alexander, Cornell Univ. Mem. 38: 957-959; 1920) been considered as representing a tribe, the Styringomyini. More recently it had been placed as a subtribe, the Styringomyaria, as in the present paper.

The included species are small midge-like flies of very characteristic appearance. When resting, they lie close to the surface, with the fore and middle legs extended straight ahead, the posterior pair directed backward. Body and legs with scattered strong setae, in certain species the bristles even more flattened and modified, with a definite chaetotaxy. Wings with Sc short, Sc_1 ending opposite the origin of R_s or nearly so; vein R_2 lacking; R_{1-2} ending only a short distance beyond the origin of R_s , there being an unusually wide space on costa between the tips of veins R_{1-2} and R_4 and especially between R_4 and R_5 , with vein R_3 interpreted as being atrophied; element R_{2-3-4} very short to lacking, in the latter case with R_4 arising at the fork of R_s , as figured; R_4 oblique to nearly transverse, in our species approximately one-third the length of R_s ; R_s in longitudinal alignment with R_5 ; cell 1st M_2 elongate, m reduced or entirely lost, in the latter case the basal section of M_3 very long, comprising the entire outer end of cell 1st M_2 ; in cases, veins M_{1-2} and M_3 are extensively fused beyond cell 1st M_2 , forming a short to long element M_{1-2-3} ; $m-cu$ approximately its own length or more beyond the fork of M ; vein 2nd A simple in our species, angulated and spurred near its tip in various Palaeotropical forms. (Fig. 29, *mystica*). Osten Sacken earlier (Mon. Dipt. N. Amer., 4: 103; 1869) had noted that certain features of the venation, particularly of the radial field,

are very much as in *Toxorhina*, next considered, but it should be noted that all other features of the venation, as well as the body structure, are entirely different in the two groups. Male hypopygium with the entire organ inverted to 180° so the tergite occupies the ventral position, the sternite the dorsal one. There is a single dististyle that becomes vastly modified and complex in various Palaeotropical species. Ovipositor with the valves short and blunt.

In America, the relatively few species occur from Central America to southern Brazil and Bolivia, chiefly at low and moderate altitudes. In the Old World at least 80 species are known, wide-spread throughout the tropical and subtropical lands. There is an abundance of forms in the Ethiopian and Oriental Regions, with fewer species in the southern Palearctic and into

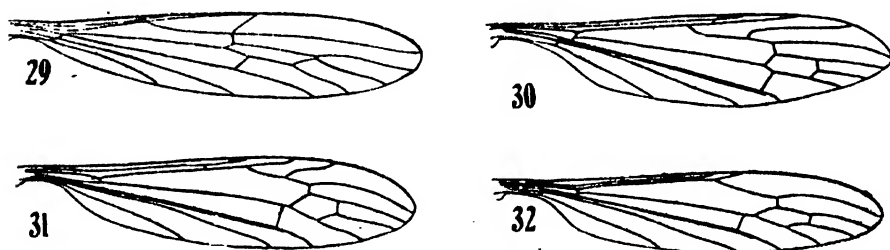


Fig. 29. *Styringomyia mystica* Alexander; venation. — Fig. 30. *Toxorhina (Ceratocheilus) leucostena* Alexander; venation. — Fig. 31. *Toxorhina (Ceratocheilus) superstes* Alexander; venation. — Fig. 32. *Toxorhina (Toxorhina) trilobata* Alexander; venation.

the Australasian Region. One species occurs as far north as eastern Siberia where there is a noteworthy northern extension of the Oriental biota. Another species (*didyma* Grimshaw) is very widespread over many of the Pacific islands, as far north as Hawaii. It is of interest to note that this genus was found fossil in Baltic Amber (Lower Oligocene) and in copal many years before the first living species were described. Despite the fact that so relatively few species occur in America, as compared with their distribution in the tropics of the Old World, the very generalized structure of the male hypopygium of our forms may indicate that the group had an American origin.

The immature stages occur in decaying organic matter, such as banana fibre, rotting palm trees, and the like (Alexander, Cornell Univ. Mem. 38: 959; 1920; Edwards, Ann. Mag. Nat. Hist., (9) 13: 267-269; 1924).

List of Species

americana Alexander. — British Honduras, Costa Rica, Colombia, Venezuela, British Guiana, Surinam, Ecuador.

dorsolineata Alexander. — Ecuador.

mystica Alexander. — Peru.

paulista Alexander. — Southeastern Brazil.

simplex Alexander. — British Guiana, Peru.

The fly recorded by me from the Bolivian Chaco, collected by Lindner (Konowia, 12: 46; 1933) and determined as being *americana* must be held in question until more material of the species can be secured.

Toxorhina Loew

Limnobiorhynchus Westwood; Ann. Soc. Ent. France, 4: 683, in part; 1835; (type *brasiliensis* Westwood).

Toxorhina Loew; Linnaea Entomol., 5: 400; 1851; (type *fragilis* Loew).

Toxorhina Osten Sacken; Mon. Dipt. N. America, 4: 109-114; 1869; (emendation of last).

Neoceratocheilus Wesché; Journ. Linn. Soc. Zool., 30: 1910; (type *grahami* Wesché).

Subgenus *Ceratocheilus* Wesché

Ceratocheilus Wesché; Journ. Linn. Soc., Zool., 30: 358; 1910; (type *winn-sampsoni* Wesché).

Styringomyia (*Neostyringomyia*) Alexander; Can. Ent., 44: 85; 1912; (type *cornigera* Spelser).

Conithorax Brunetti; Rec. Indian Mus., 15: 298; 1918; (type *latifrons* Brunetti).

Mr. J. Aspinall Turner collected three small crane-flies at Bahia, Brazil, that were later described by Westwood as *Limnobiorhynchus brasiliensis* (Ann. Soc. Ent. France, 4: 683; 1835) and thereby set the stage for the most controversial synonymy in the Tipulidae. It was later found that the two males of this supposed single species actually belong to the genus *Limonia* Meigen, subgenus *Geranomyia* Haliday, 1833, whereas the single female was a member of the genus *Toxorhina*, as here considered.

The problem is unique in the family in that two entirely distinct crane-flies were given a single name and it has become necessary to attempt to decide whether the law of priority, in this case, decision of generic position, can apply. If there is priority in such a case, it would seem that Osten Sacken (1869, see references at end of this discussion) had settled the matter when he discarded the genus *Limnobiorhynchus* on the argument that the male sex had earlier been described as *Limonia* (*Geranomyia*) Haliday and that at least this part of the name fell into the synonymy of the latter group. In 1881 Westwood reviewed the case and admitted that the male

sex of his supposed genus fell in the synonymy of *Geranomyia* and thereupon attempted to restrict the name to the female sex, or *Toxorhina*, as here treated. In the very detailed discussions of the pros and cons of the case, as cited below, there are to be found all possible opinions, some students of the family siding with Westwood and recognizing the name *Limnobioryhnchus*, while still others considered that the matter would be most readily settled by discarding the name *Limnobioryhnchus* and adopting the term *Toxorhina*. On the basis of first selection of names by Osten Sacken I believe that the case will be most fairly adjusted by following his suggestion and discarding the name *Limnobioryhnchus* as being a composite and having no status. In 1910, Coquillett selected the *Geranomyia (brasiliensis)* as the type of *Limnobioryhnchus*, thereby confirming the above synonymy. Since there were two very distinct flies standing under the same specific name *brasiliensis* Westwood, 1835, Brunetti (Rec. Indian Mus., 15: 298; 1918, and 17: 229; 1920) held that the female could not bear the same specific name as the male and re-named the fly of this sex as *Toxorhina westwoodi*. I can see no possible justification for such a step.

Further complicating the general problem between 1910 and 1920, several students of the Tipulidae, as Bergroth, Brunetti and Enderlein, added to the confusion by maintaining that the genus *Aporosa* Macquart, 1838 (now and earlier placed in the synonymy of *Limonia*: *Geranomyia*) was actually the prior name for what we had been calling *Elephantomyia* Osten Sacken. The mistake was soon recognized but not before considerable literature had appeared to further complicate the subject. All in all the confusion in names in *Elephantomyia* and *Toxorhina* is the most involved in the literature of the entire family.

Detailed discussions concerning the nomenclatorial problem in *Toxorhina* may be found in the following papers:

- Loew, H., Linnaea Entomologia, 5: 400; 1851.
- Schiner, J., Reise Navarra, Diptera, p. 33; 1868.
- Osten Sacken, C. R., Mon. Diptera N. America, 4: 106-114; 1869.
- Westwood, J. O., Trans. Ent. Soc. London, 1881: 373-374; 1881.
- Bergroth, E., Ann. Mag. Nat. Hist., (8) 11: 580; 1918.
- Brunetti, E., Rec. Indian Mus., 15: 300-304; 1918.
- Alexander, C. P., Proc. Acad. Nat. Sci. Philadelphia 1921: 90; 1921.
- Alexander, C. P., Bernstein-Forschungen, 2: 87-88; 1931.

The genus *Toxorhina* is extremely well defined, not only by the elongate rostrum but by the greatly lengthened cervical

region, with the anterior part of the mesonotal praescutum jutting forward over the base of the latter. The rostrum in many species exceeds in length the entire body or wing, bearing the reduced mouthparts at the tip. The genus *Elephantomyia* Osten Sacken (Part V of this series of papers) has this same general type of rostrum but I do not consider that the two groups are closely allied. The antennae of *Toxorhina* are peculiar, in the male 12-segmented, with several basal segments united into a truncate-conical fusion-segment, the flagellar articles, excepting the last two, glabrous, the outer pair with very long and conspicuous verticils. In the female the antennae are apparently 14 or 15 segmented, with the outer four or five articles provided with elongate verticils. The venation, as further defined below, is very reduced, particularly in the typical subgenus where a single branch of *Rs* reaches the margin. In *Ceratocheilus* the anterior branch of *Rs* is preserved and, in the Tropical American species, is longitudinal or oblique in position. In the subgenus *Eutaxorhina* Alexander (*simplex* Alexander; Australasian Region, Fiji), the venation shows the greatest reduction in any known Tipulid, with both the anterior branch of *Rs* and vein *M*₃ atrophied so only eight veins reach the wing margin. In *Toxorhina*, s. s., (Fig. 32, *trilobata*) there are nine branches; in *Ceratocheilus* (Fig. 30, *leucostena*; Fig. 31, *superstes*) ten such branches.

The venation of *Toxorhina*, s. s., has *Sc* short, *Sc*₁ ending opposite or just beyond the origin of *Rs*, *Sc*₂ a short distance from the tip of *Sc*₁ and usually before the origin of *Rs*; *R*₁₋₂ beyond *Rs* short to very short, ending about opposite one-third the length of *Rs*; all branches of *Rs* excepting *R*₅ atrophied, the latter vein ending close to the wing tip, cell *R*₂ at margin thus very wide. Cell 1st *M*₂ closed or, in cases, open by the atrophy of *m*; in *distalis* cell 1st *M*₂ is very long and *r-m* lies far distad so *Rs* is longer than *R*₅; *m-cu* usually close to the fork of *M*, in *distalis* some distance beyond, in other species a little before the fork. Vein 1st *A* on basal third or more lying parallel and very close to *Cu*, thence diverging to the margin; in dry specimens an appearance is given of a basal fusion of *Cu* and 1st *A* but this is not the case. Anterior arculus preserved; interanal crossveins lying opposite or just before the level of *h* and far before the level of arculus. (Fig. 32, *trilobata*). Macrotrichia of veins usually lacking or very reduced; in *viola-*

ceipennis, *Rs* and the veins beyond cord with very long and abundant trichia.

The venation of *Ceratocheilus* is much as in *Toxorhina*, s. s., but more generalized, distinguished by the retention of the anterior branch of *Rs*; in *americana* this is a little longer than *Rs*, oblique in position. In various other Neotropical species, the anterior branch of *Rs* is long and extends generally parallel to the posterior one so it is much longer than *Rs*. (Fig. 30, *leucostena*). In such species, vein *Sc* is longer than usual and *Sc*₂ lies some distance beyond the origin of *Rs*. In these latter species, the apparent approximation of veins *Cu* and 1st *A* at their bases is not or scarcely shown and the venation of this field is virtually as in other Tipulidae (as in *chiapasensis*). Similarly the posterior prearcular crossveins, including the interanal, lie much closer to arculus.

Male hypopygium of peculiar structure. Basistyle with or without an apical spine. Dististyle single, of various shapes, providing good specific characters. Aedeagus deeply to profoundly bifid (as in *stenophallus*), in the usual cases more or less resembling a tuning fork. Ovipositor with the cerci long and slender, gently upcurved to the acute tips; hypovalvae shorter and more compressed.

One of the most peculiar and diagnostic characters of the entire subtribe is found in the profoundly bifid setae that clothe the legs. Nothing similar to this is found elsewhere in the Tipulidae so far as known to me.

Toxorhina, s. s., has a wide distribution in the Americas, with two species in the eastern Nearctic, at least one of which occurs as far north as Canada. Various species are common and wide-spread in the American Tropics, including the Bahamas and Antilles. Elsewhere in the world a relatively few forms occur in the Ethiopian and Oriental Regions, with other members occurring at least as far east as New Guinea. *Ceratocheilus* has a somewhat different range, the few American species being strictly tropical. There are relatively few species in the Ethiopian and Oriental Regions. In Australasia the range is more extensive than in the case of the typical subgenus, with species in eastern Australia, including Tasmania, in New Caledonia, and in New Zealand.

The immature stages have not been described.

List of Species

Toxorhina

- atripes* Alexander. — Colombia.
- brasiliensis* (Westwood). — Brazil.
- centralis* Alexander. — Mexico, Guatemala, British Guiana, Brazil.
- curvata* Alexander. — Ecuador.
- distalis* Alexander. — Bahamas.
- domingensis* Alexander. — Cuba, Hispaniola.
- flavida* Alexander. — Brazil.
- fragilis* Loew. — Puerto Rico.
- (fumipennis* Alexander, see *infumipennis* Alexander).
- infumipennis* Alexander. — Lesser Antilles: Dominica..
- longicollis* Pierre. — Venezuela.
- mendosa* Alexander. — Southeastern Brazil.
- meridionalis* Alexander. — Brazil.
- nigrivena* Alexander. — Costa Rica.
- pergracilis* Alexander. — Peru.
- polycantha* Alexander. — Venezuela.
- stenophallus* Alexander. — Venezuela, Brazil.
- trilobata* Alexander. — Mexico.
- violaceipennis* Alexander. — Cuba.
- (*westwoodi* Brunetti, name proposed for *brasiliensis* Westwood).

Ceratocheilus

- americana* (Alexander). — Costa Rica, Colombia, Peru, Brazil.
- atritarsis* Alexander. — Ecuador.
- chiapasensis* Alexander. — Mexico.
- leucomelanopus* (Enderlein). — Colombia.
- leucostena* Alexander. — Surinam.
- maculipennis* Alexander. — Southeastern Brazil.
- niveitarsis* Alexander. — Panama, Colombia.
- prolongata* Alexander. — Southeastern Brazil.
- superstes* Alexander. — Peru.

Kurze Uebersicht der Sericosoma-Arten (Bombyliidae, Diptera).

Von Prof. Dr. S. J. P a r a m o n o w, Division of Economic Entomology, Canberra, Australia.

Die kleine Gattung *Sericosoma* Macq. hatte bis zum Jahre 1936 nur eine einzige Art: *S. fascifrons* Macq. Dann fuegte F. W. E d w a r d s noch 4 Arten hinzu. Hier beschreibe ich noch eine neue Art. Eine Bestimmungstabelle wird natuerlich nicht ueberfluessig.

Bestimmungstabelle der Sericosoma-Arten.

1. Die Bekleidung des Hinterleibs ist oben und unten cremeweisslich, auf dem groessten Teil der Ober- und Unterseite besteht diese Bekleidung aus schmalen, anliegenden Schuppen und einer Anzahl beigemischter abstehender Haare 2.
— Der Hinterleib ist nur mit langen abstehenden Haaren bedeckt oder die Schuppen befinden sich nur auf der Unterseite des Hinterleibs.. 3.
2. Die Fluegel sind leicht beraucht, auf der Basalhaelfte etwas schwaecher. Auf der Mitte des Hinterleibs verlauft ein breiter Laengsstreifen von schwarzen Schuppen; die Schuppen an den Seiten des Hinterleibs sind gelblich. Die Behaarung des Thorax ist hauptsaechlich dunkel (Chile)
S. furva Edwards ♂
— Die Fluegel sind bis zur Basis der Discoidalzelle gelblichbraun. Die Behaarung des Hinterleibs ist oben cremeweisslich, auf dem Thoraxruecken gelblichbraun (Chile) *S. squamiventris* Edw. ♂
3. Alle Queradern des Fluegels sowie eine Stelle an der Basis der R_4 sind mit leichten dunklen Flecken versehen, doch muss man dies unter der Lupe untersuchen. Schwinger schwaerzlich. Auf dem Gesicht, auf dem Thorax und Hinterleib befindet sich eine Anzahl von Schuppen. Die Behaarung des Hinterleibs ist reinweiss, nur auf der Spitze befinden sich einzelne schwarze Borstenhaare... *S. pubipes* Edw. ♂
— Die Queradern des Fluegels haben keine leichten dunklen Flecken. Auf dem Kopf, dem Thorax und Hinterleib befinden sich keine Schuppen oder dieselben sind in einer aeusserst geringen Anzahl vorhanden. Schwinger gelblich oder teilweise gelblich. 4.
4. Die Haare auf der Oberseite des Hinterleibs sind weiss, auf der Unterseite laengs der Medianlinie weiss, doch sind sie an den Seiten schwarz. Die Haare auf dem Gesicht sind weiss. Das 3. Fuehlerglied ist der ganzen Laenge nach fast gleich breit (Chile)
S. bigotiana Edw. ♂
— Die Haare auf dem ganzen Hinterleib sind weiss. Das 3. Fuehlerglied ist an der Spitze und an der Basis verjuengt, nicht der ganzen Laenge nach gleich breit. Fluegel an der Basis leicht, doch merklich, vergilbt. (Chile) *S. fascifrons* Macq. ♂
— Die Haare auf dem ganzen Hinterleib sind weisslich, doch befinden sich an den Seiten der basalen Segmente sehr dichte, gut bemerkbare, schwarze Haare. Das 3. Fuehlerglied ist der ganzen Laenge nach gleich breit. Fluegel ganz durchsichtig, doch an der aeussersten Basis etwas vergilbt, aber diese Faerbung ist fast unmerklich (Argentinien).
S. argentinae, sp. nov. ♂, ♀

Beschreibungen und Kritische Bemerkungen.*Sericosoma fascifrons* Macq. ♂

Der Typus dieser Art (Maennchen) ist offenbar verloren gegangen. Nach Edwards befinden sich im Pariser Museum unter diesem Namen nur zwei Weibchen. Beide sind schlecht erhalten und haben ganz durchsichtige Fluegel; der groesste Teil des Gesichts ist ausserdem mit anliegenden Schuppen bedeckt, was bei den anderen Arten nicht vorkommt. Daher ist es zweifelhaft, ob diese Weibchen zu der von Macquart beschriebenen Art gehoeren. Es wird richtiger sein, unsere Vorstellung ueber diese Art nur auf die Beschreibung und die Abbildung Macquart's zu begruenden.

Nach der Arbeit von Edwards ist es klar, dass diese Gattung viel artenreicher ist als wir bisher angenommen haben. Im Zusammenhang mit Obengesagtem glaube ich, dass meine Interpretation dieser Art (s. "Eos", 1940) nicht ganz richtig ist. Mein Manuskript wurde noch vor dem Erscheinen der Edwards'schen Arbeit, vor dem buergerlichen Krieg in Spanien eingesandt, also in der Zeit als unsere Kenntnisse ueber diese Gattung nur auf einer einzigen Art begruendet waren. Die politischen Umstaende haben mir keine Moeglichkeit gegeben, rechtzeitig etwas ueber das Schicksal meiner Arbeit zu hoeren und nur Ende 1942 habe ich zufaelligerweise erfahren, dass das Manuskript schon 1940 gedruckt wurde. Jetzt scheint mir zweckmaessiger, meine Art, welche ich fuer *S. fascifrons* gehalten habe, als eine neue Art unter dem Namen *S. argentinae* zu beschreiben (s. unten).

Die Abbildung von Macquart zeigt, dass das 3. Fuehlerglied nicht stabfoermig oder langkegelfoermig, sondern etwas hinter der Mitte deutlich verdickt und dann scharf verjuengt ist; das steht im Widerspruch mit der Berchreibung von Macquart, wo dasselbe "subuliforme" genannt ist. Ferner ist die Basalhaelfte des Fluegels sehr leicht, doch merklich vergilbt. Der Scheitel nimmt nur etwa 1/5 der Kopfbreite ein.

F. W. Edwards haelt es fuer moeglich, dass die Macquart'sche Beschreibung eine kombinierte Beschreibung darstellt (nach zwei Maennchen von *S. bigotiana* Edw. und *S. fascifrons* Macq. gemacht). Ich glaube, der Reichtum dieser Gattung an Arten gibt Grund zur Hoffnung, dass wir in Zukunft noch echte *S. fascifrons* auffinden werden.

Von den bis jetzt bekannten Arten unterscheidet sich *S.*

fascifrons Macq. folgenderweise: 1) da Macquart ueber die Beschuppung des Kopfs, des Thoraxrueckens und Hinterleibs kein einziges Wort sagt, und da es andererseits (wenngleich teilweise) beschuppte Arten gibt, koennen *S. squamiventris* und *S. furva* mit *S. fascifrons* Macq. nicht identisch sein; 2) wegen der Anwesenheit der schwarzen Borstenhaare auf der Spitze des Hinterleibs und der weissen auf dem 1. Fuehlerglied, kann *S. pubipes* Edw. nicht mit *S. fascifrons* verwechselt werden; 3) wenn die Angaben von Macquart ueber die Form des 3. Fuehlerglieds richtig sind, unterscheidet sich *S. bigotiana* von *S. fascifrons* durch das gleichbreite 3. Fuehlerglied, durchsichtige Fluegel, sowie durch den teilweise schwarz behaarten Hinterleib; 4) der sehr breite Scheitel, welcher mehr als $\frac{1}{3}$ der Kopfbreite einnimmt, und die schwarzen Haare an den Seiten der basalen Segmente des Hinterleibs machen es sehr leicht, *S. argentinae* sp. nov. von *S. fascifrons* zu unterscheiden.

Sericosoma squamiventris Edw. ♂

Die Fazetten der Augen sind im oberen Drittel ein wenig grosser als im unteren Drittel; beide Zonen sind nicht scharf abgegrenzt. Das 3. Fuehlerglied ist in der Distalhaelfte deutlich verjuengt, doch ist es unmittelbar vor dem kleinen Spitzenstylus sehr leicht verbreitert. Das 1. Fuehlerglied mit langen weissen Haaren. Das Gesicht ist mit langen seidigen weissen Haaren bedeckt, ohne Beimischung von Schuppen. Eine geringe Anzahl anliegender Schuppen (mit schwarzen Haaren untermischt) befindet sich oberhalb der Fuehler und unter dem Stirnstreifen schwarzer Haare. Die Haare ueber der Fuehlerbasis und auf dem Hinterkopf sind cremegelblich; ein Streifen von breiten cremegelben Schuppen befindet sich in der Mitte des oberen Teils des Hinterkopfs zwischen Scheitel und Hals. Die Haare auf dem Thorax sind oben gelblichbraun, unten weiss. Die Bekleidung des Hinterleibs ist oben und unten ganz cremeweiss (nicht reinweiss); der Hauptteil der Ober- und Unterseite des Hinterleibs ist mit schmalen anliegenden Schuppen und mit einer Anzahl untergemischter abstehender Haare bedeckt; an den Seiten sind die abstehenden Haare viel dichter und die Schuppen verhaeltnismaessig geringer. Die Beine sind mit cremefarbenen Schuppen bedeckt; die Vorderschenkel mit langen weissen Haaren; Hinterschienen und Tarsen mit kurzen Borsten, doch ohne Haare.

Fluegel an der Basis gelblichgraun; diese Abtoenung erstreckt sich bis zur Basis der Discoidalzelle und laesst einen durchsichtigen Fleck in dem oberen Winkel der unteren Basalzelle frei. Keine Spur von Verdunkelung ueber den Queradern. Schwinger gelblich. Fluegellaenge beinahe 8 mm.

Chile: Typus (♂) in British Museum aus Reñaca, II, 1933 (Dr. Reed) (Edwards).

Waehrend meines Aufenthaltes im British Museum habe ich Folgendes notiert: "Typus. Diese Art ist durch ihre dichte, gelbliche Behaarung, die den ganzen Koerper bedeckt, sehr leicht erkennbar. Die schwarzen Haare befinden sich nur auf der Stirn. Die Behaarung des Gesichts ist dicht, schneeweiss. Die Ader, welche die 2. von der 3. Hinterrandzelle abtrennt, verlaeuft der entsprechenden Ader merklich nicht parallel (bei *S. pubipes* verlaeuft sie fast parallel). Die ganze Fluegelflaeche ist durchsichtig, die von Edwards angezeigte Faerbung ist nur unter der Lupe ersichtlich".

Sericosoma furva (sic!) Edw. ♂

(Fulva ist ein Druckfehler wie es die handschriftliche Besserung von F. W. Edwards auf meinem Sonderabdruck zeigt, sowie die Etiketten des Typus und Paratypus in British Museum).

Kopf wie bei *S. squamiventris*. Die Haare des Thorax sind oben etwas dunkelbraun, ueberwiegend schwarz auf den Schultern und an den Seiten, sodass der ganze Thorax von oben schwarz zu sein scheint; die weissen Haare sind nur auf den Coxen vorhanden. Der Hinterleib mit einer aehnlichen dorsalen Schuppenbekleidung wie bei *S. squamiventris*; an den Seiten und unten befinden sich lange weisse Haare. Die Schuppen auf dem breiten Medianstreifen sind schwarz, gegen die Seiten gelblich werdend; die Seitenhaare sind oben gelblich, unten schwarz; die Haare auf der Bauchseite sind schwarz mit Ausnahme der Mittellinie, wo sie weiss sind. Beine schwarz, mit gelben Schuppen. Fluegel leicht verdunkelt, etwas mehr auf der Basalhaelfte, die Verdunkelung erstreckt sich bis zum Ende der Discoidalzelle.

Chile: L. Verde, III, 1933 (Dr. Reed), 3 ♂. Typus in British Museum. (Edwards).

In British Museum habe ich Folgendes notiert: "Typus und Paratypus. Sehr leicht erkennbar durch die schwarze Behaarung des Thoraxrueckens, der ganzen Stirn, sowie die der Seiten des 1. und 2. Hinterleibssegments (besonders). Auf der letzten Haelfte

der Oberseite des Hinterleibs befinden sich ziemlich zahlreiche gelbe Schuppen. Der Basalteil des Fluegels ist sehr leicht, doch merklich vergilbt (fast bis zur Spitze der Discoidalzelle). Das Geaeder steht dem von *S. squamiventris* viel naeher als dem von *S. pubipes* (die 2. und 3. Hinterrandzelle sind deutlich nicht parallelseitig).

Sericosoma bigotiana Edw. ♂

Die Augen mit Fazetten, welche in der oberen Haelfte merklich groesser sind als der unteren, wobei die Grenze beider Zonen scharf ist. Das 3. Fuehlerglied ist seiner ganzen Laenge nach gleich breit, nicht an der Spitze oder an der Basis verjuengt. Das 1. Glied mit langen schwarzen Haaren. Die Haare unmittelbar ueber der Fuehlerbasis sind weiss, sowie die des vertikalen Bueschels. Die Schuppen auf dem Gesicht, sowie auf dem Hinterkopf zwischen dem Scheitel und Hals sind abwesend. Die Haare des Thorax oben und unten sind lang, weisslich. Der Hinterleib ist nur mit langen abstehenden Haaren bedeckt, die Schuppen, auch auf der Oberseite, sind abwesend, obgleich das Exemplar fast unbeschadigt ist. Die Haare auf der Oberseite und laengs der Mittellinie des Bauches sind weiss, an den Seiten desselben schwarz. Beine mit weissen Schuppen. Die Vorder-schenkel mit langen weissen Haaren; die Hinterschienen und Tarsen mit kurzen Borsten, doch ohne Haare. Fluegel ganz durchsichtig. Schwinger an der Basis des Knopfes schwarz.

Chile: Typus in der Sammlung von Bigot, jetzt im Besitz von J. E. Collin (Edwards).

Sericosoma pubipes Edw. ♂

Die Augen wie bei *S. bigotiana*; die Zone der groesseren Fazetten, welche vielleicht verhaeltnismaessig groesser sind, nimmt etwas mehr als die Haelfte des Auges ein. Das 3. Fuehlerglied ist an der Basis auf einer Strecke zusammengedrueckt, die distalen drei Fuenftel desselben oder fast soviel sind leicht, doch merklich verbreitert. Das 1. Fuehlerglied ist mit reinweissen Haaren bedeckt. Die Haare auf dem Gesicht sind dicht und reinweiss, mit einer Anzahl von weissen anliegenden untergemischten Schuppen zwischen den Fuehlern und oberhalb derselben; die Augen sind mit einem schmalen Streifen weisser Schuppen eingefasst. Ein wenig kleiner gelblicher Schuppen befindet sich in dem schwarzen Haarstreifen auf der Stirn. Der vertikale Bueschel besteht aus

reinweissen Haaren; weiss sind auch die anderen Haare auf dem Hinterkopf und kleine Schuppen, welche die Augen von hinten einfassen. Ein Schuppenfleck, teilweise weiss und schwarz, befindet sich auf dem Hinterkopf zwischen dem Hals und Scheitel. Die Haare auf dem Thorax und Hinterleib sind dicht und reinweiss, mit Ausnahme einiger schwarzer Borstenhaare auf der Spitze des Hinterleibs; einzelne kleine anliegende gelbe Schuppen befinden sich auf der Oberseite des Thorax und des Hinterleibs. Beine mit weissen Schuppen; Hinterschienen und Tarsen mit maessig langen und dichten schwarzen Haaren. Fluegel durchsichtig, mit leichten dunklen Abzeichen ueber saemtliche Queradern und an der Basis der R_4 , an der Basis jedoch ohne Verdunkelung. Schwinger schwaerzlich, wie die ganze Grundfaerbung des Koerpers.

Argentinien: Chubut Territory, XII, 1919 (H. E. Bos). Typus in British Museum (Edwards). Edwards fuegt hinzu, dass das Hypopygium bei dieser Art sich von demselben aller anderer Arten unterscheidet.

In British Museum habe ich Folgendes notiert: "Typus. Sehr leicht erkennbar durch die seidige schneeweisse Behaarung des Koerpers (nur die Stirnhaare sind schwarz) und durch die Abwesenheit der Schuppen auf den Tergiten. Die von Edwards erwaehnten dunklen Aderknotenpunkte sind nur unter der Lupe bemerkbar (!) und im allgemeinen sind sie sehr schwach ausgepraegt".

Sericosoma argentineae, sp. nov. ♂ ♀

Der Kopf ist sehr breit, breiter als der Thorax, dieser ist breiter als der laenglichkonische, gegen die Spitze sich verschmaelernde Hinterleib; in folgedessen hat der ganze Koerper eine regelmaessige, langdreieckige Form, deren Basis der Kopf darstellt. Besonders ist der Hinterleib beim Maennchen verjuengt. Die Grundfarbe des Koerpers ist tiefschwarz, matt, nur bei einem Weibchen glaenzt der Thoraxruecken stark, doch ist dieses Exemplar staerker abgerieben als die anderen; im normalen Zustand ist der Thoraxruecken etwas gelblich bestaeubt, mit drei fast unbemerkbaren schwarzen Laengsstreifen.

Der Scheitel nimmt beim Maennchen ein wenig mehr als $1/3$ der Kopfbreite ein, beim Weibchen ein wenig mehr als die Haelfte desselben. Der Ozellenhoecker ist viel breiter als lang (fast 3-mal beim Maennchen und 2-mal beim Weibchen). Der Abstand der

seitlichen Ozellen vom Auge ist beim Maennchen sehr klein (fast so gross wie die zweifache Breite der Ozelle), beim Weibchen ist der Abstand groesser: der Haelfte des Ozellenhoeckers gleich, mit anderen Worten der Ozellenhoecker nimmt die Haelfte des Scheitels ein.

Ruessel lang, fast ebenso lang wie der Hinterleib oder etwas laenger. Die Mundhoehle ist verhaeltnismaessig kurz und sehr schmal, an der breitesten Stelle nimmt sie nur $\frac{1}{5}$ der Kinnbreite ein. Taster konisch, wahrscheinlich eingliedrig, aus der Mundhoehle fast nicht hervorragend, gelblich. Fuehler schwarz, das 3. Glied ist sehr lang, parallelseitig, stabfoermig, deutlich laenger als die beiden ersten Glieder zusammen, mit einem kurzen, doch gut bemerkbaren Griffel und einem stabfoermigen Griffelchen, nackt, unbestaeubt. Das 2. Glied ist fast rundlich, von der Seite betrachtet fast zweimal breiter als das 3., bestaeubt, sehr kurz behaart. Das 1. Glied ist lang, dick, etwas aufgeschwollen, 3-4 mal breiter als das 3., sehr lang und dicht schwarz (ueberwiegend) und weisslich gemischt behaart (beim Weibchen nur weisslich behaart).

Die ganze Stirn, das Gesicht und das Kinn sind beim Maennchen sehr dicht und lang behaart, nur unmittelbar ueber der Fuehlerbasis befindet sich eine gerade, wie geschorene, schmale, nackte Querbinde und am vorderen Augenrand unten zwischen den Wangen und Backen gibt es auch eine dreieckige nackte Stelle. Die ganze Stirn und der Ozellenhoecker sind tiefschwarz behaart (nur wenige weissliche Haare sind beigemischt); das ganze Gesicht ist auch ueberwiegend schwarz, das Kinn aber weiss behaart. Auf der Stirn und dem Gesicht befinden sich beim Maennchen keine anliegenden Schuppen. Das Gesicht ist aeusserst breit, von vorne gesehen erinnert es an sehr *Anastoechus*-Arten.

Beim Weibchen ist die Behaarung des Kopfes weisslich oder etwas gelblich, nur auf der oberen Haelfte der Stirn befinden sich nicht sehr zahlreiche schwarze Haare, welche einen schwarzen Querstreifen bilden; auch stehen neben den seitlichen Ozellen kleine Bueschel schwarzer Haare. Der innere Augenrand ist fast bis zur Mitte der Hoehe mit einer Reihe von schwarzen Haaren umrandet. Das untere Drittel der Stirn, welches fast haarlos ist und eine nackte Querbinde bildet, ist mit ziemlich dichten, anliegenden, weisslichgelblichen Schuppen bedeckt; ebensolche Schuppen befinden sich auch auf dem Gesicht, besonders in der Mitte. Die Behaarung des Kopfes ist bedeutend spaerlicher als

beim Maennchen. Der Hinterkopf ist bei beiden Geschlechtern kurz gelblich behaart; hinter dem Ozellenhoecker befindet sich ein Faecher abstehender, weisser Haare.

Die Behaarung des Thorax, besonders unten, ist sehr dicht, lang, ueberwiegend weisslichgelb; doch befinden sich beim Maennchen auf den Thoraxseiten ziemlich zahlreiche schwarze Haare; beim Weibchen sind dieselben abwesend. Die Borsten des Thorax und Schildchens sind schwach gelblich, beim Weibchen etwas groeber, aber im allgemeinen ziemlich haaraehnlich. Die Beschuppung auf dem Thorax fehlt fast gaenzlich.

Fluegel wasserklar, nur an der Basis schmal vergilbt, diese gelbe Faerbung ist nur unter der Lupe wahrzunehmen. Die 1. Hinterrandzelle ist sehr breit offen, ihrer ganzen Laenge nach breiter werdend; an der Spitze ist sie fast so breit wie die 1. Submarginalzelle oder die 3. Hinterrandzelle. Die Basis der 3. Hinterrandzelle ist sehr lang, fast gerade. Die zwischen der 2. und 3. Hinterranzelle liegende Ader verlaeuft den entsprechenden Adern nicht parallel. Die gewoehnliche Querader steht am Ende des 2. Drittels der Discoidalzelle. Der gemeinsame Stamm der 2. und 3. Laengsader ist kurz, merklich vor der Basis der Discoidalzelle endigend. Die 2. Laengsader ist nicht gerade, sondern breit wellenfoermig.

Schwinger gelb; oberhalb derselben befindet sich beim Maennchen ein grosser schwarzer Haarbueschel. Beine schwarz (Schienen heller), weiss beschuppt und behaart. Borsten fehlen, es gibt nur haaraehnliche Boerstchen auf der Unterseite der Hinterschenkel. Schienen und Tarsen sehr kurz beborstet. Pulvillen deutlich.

Der Hinterleib ist oben lang und sehr dicht gelblich weisslich behaart, die Haare haben einen seidigen Glanz, doch sind die Seiten des 1. und 2. und teilweise des 3. Segments sehr dicht schwarz behaart; beim Weibchen fehlen die langen schwarzen Haare an der Basis des Hinterleibs fast gaenzlich, doch sind auf dem letzten Segment sehr kurze, abstehende, schwarze Haare vorhanden; ausserdem befindet sich laengs dem Hinterrand des vorletzten Segments eine Reihe etwas laengerer schwarzer Haare. Die Beschuppung auf dem Hinterleib fehlt beim Maennchen gaenzlich; beim Weibchen koennen auch wenige an den Seiten der letzten Tergite vorhanden sein.

Koerperlaenge 11 mm., Fluegellaenge 10 mm.

2 ♂, 2 ♀, III-IV (nicht IX wie es in meiner Arbeit 1940

gedruckt ist!), 1905, Salta, Cachi, 2500 m. Argentina sept. J. Steinbach leg. Typen in meiner Sammlung.

Anmerkung. Gegen die Identifizierung dieser Art mit *S. fascifrons* sprechen folgende Tatsachen: 1) *S. fascifrons* Macq. stammt von Chile; *S. argentinae* sp. nov. von Argentinien; 2) die Fluegel bei *S. fascifrons* sind an der Basis ein wenig gelblich; bei *S. argentinae* sind die wasserklar, eine leichte Vergilbung ist hier nur unter der Lupe sichtbar; 3) die Behaarung des Kopfes ist im allgemeinen nicht weiss, sondern mit einer leichten gelblichen Abtoenung; 4) wenn Macquart ein Maennchen beschrieben hat, ist der Scheitel bei *S. argentinae* viel breiter (bei *S. fascifrons* etwa $\frac{1}{5}$ der Kopfbreite, bei *S. argentinae* $\frac{1}{3}$ derselben einnehmend; ferner fehlen die schwarzen Haaren auf den Basalsegmenten des Hinterleibs bei *S. fascifrons* gaenzlich; ausserdem sind die Haare auf dem Gesicht des Maennchens von *S. argentinae* schwarz und auf der Stirn so dicht, dass dort keine nackte Querbinde vorhanden ist; 5) wenn Macquart ein Weibchen beschrieben hat, stimmt die Scheitelbreite von *S. fascifrons* ($\frac{1}{5}$) mit derselben von *S. argentinae* ($\frac{1}{2}$ der Kopfbreite) auch nicht ueberein; ausserdem hat Macquart ueber die zahlreichen Schuppen auf der Stirn und dem Gesicht, welche bei *S. argentinae* sehr gut ausgepraegt sind, kein Wort gesagt. Wenn endlich die Beschreibung von Macquart eine kombinierte Beschreibung beider Geschlechter von zwei verschiedenen Arten darstellt, muessen wir diese Beschreibung als nomen nudum (nomen hybridum) betrachten.

Am wahrscheinlichsten bezieht sich die Macquart'sche Beschreibung auf eine noch nicht von anderen geschene Art, deren Weibchen im British Museum aufbewahrt, aber noch nicht beschrieben sind. Auch ist die Moeglichkeit nicht ausgeschlossen, dass der Typus des Maennchens verloren gegangen ist und dass die von Edwards erwahnten vermutlichen Weibchen von *S. fascifrons* nicht zu dieser Art gehoeren.

Notes on Neotropical Mayflies. Part III. Family Ephemeridae

By Jay R. Traver, University of Massachusetts, Amherst, Mass.

(With 39 figures)

The present paper deals only with those adult mayflies from Mexico, Central and South America which fall into the family Ephemeridae, according to the classification used in the Biology of Mayflies.¹ As in Parts I and II of this series, the material on which the paper is based is to be found in the Cornell University Entomological Collection and in the personal collection of the writer. Statements in Part I as regards method of treatment of genitalia previous to the preparation of sketches of those structures, the use of camera lucida for all drawings unless specified to the contrary, and the use of type material in the case of the Needham and Murphy species², hold good for this paper also. Such new figures of genitalia of the Needham and Murphy species as seemed desirable, are presented, along with additional data and new distribution records for some of these species. A few typographical errors noted in checking the type material against the descriptions given in Neotropical Mayflies² are indicated.

Subfamily Ephemerinae.

This subfamily is represented in the Neotropical fauna by a single genus.

Genus *Hexagenia* Walsh.

Five species of this genus have been described from Mexico, Central and South America. It is probable that *callineura* Banks, *benedicta* Navas, and *dominans* Navas, are synonyms of *albivitta* Walker. Spieth³ proposes the subgeneric name *Pseudeatonica* for Eaton's Mexican species, *H. mexicana*.

***Hexagenia albivitta* Walker**

Both male and female specimens of this species were taken by the Cornell University Entomological Expedition, at Kartabo, Bartica District, British Guiana, on the following dates in 1924: April 2 and 19; May 25 and 26; June 9; and July 9.

Subfamily Campsurinae

The four genera of this subfamily fall into two groups: (1) pronotum very short and ring-like, not broader posteriorly than in front; fore leg of male almost as long as or longer than

body; forceps stout. To this group belong *Asthenopus* Eaton and *Asthenopodes* Ulmer. (2) Pronotum about as wide as long, much broader posteriorly than in front; fore leg of male about half as long as body; forceps long and slender. To this group belong *Campsurus* Eaton and *Tortopus* Needham and Murphy.

Genus *Campsurus* Eaton

Forty-one Neotropical species of this peculiar and interesting genus have been described to date. As Spieth⁴ has indicated, many of these are imperfectly known, due in part to incomplete descriptions and inadequate figures, and in part to the general similarity in appearance of all individuals in this group.

As to certain of the older species of *Campsurus*, the three species *holmbergi* Weyenberg, *nappii* Weyenb. and *wappaei* Weyenb. are, as Ulmer⁵ indicates, very uncertain. Lestage⁶ notes that Hagen had identified three females and one male of *wappaei*, stating that the genitalia were of the *latipennis* type. Hagen considered *holmbergi* to be probably the female of *wappaei*. Since these three species cannot be located now from the descriptions given of them, it is suggested that they be retained as names only. Probably *albicans* Perch. should be placed in this category also. Of the ten species described by Navas, both figures and descriptions are woefully inadequate in most instances, and determination must rest almost wholly on the type material, which is not readily available. Thus, Navas' species *pfeifferi* might, from the published figure of the genitalia, be allied to the *decoloratus* group, or to *dorsalis* Burmeister. *C. longicauda* Nav. appears allied to *albifilum* Wlk., and *meyeri* to *segnis* Ndhm. and Murphy, although for *meyeri* Navas indicates an affinity with *notatus* Ndhm. and Murphy,—an affinity not readily discernible from the genitalic figure. *C. juradinus* Nav. seems closely allied to if not identical with *cuspidatus* Etn. *C. dallasi* Nav. bears little if any resemblance to *segnis* as regards genitalia, yet Navas indicates its similarity to that species. Published figures of the genitalia of *zottai* and *zikani* Nav. do not seem to show any kinship to any other species of the genus. Lestage thinks that the anal area of the fore wing of *paraguarius* Nav., as figured, is abnormal for a *Campsurus*; this, with the transverse pronotum indicated by Navas, reminds Lestage of *Asthenopus* rather than of *Campsurus*. Until better figures and descriptions of the types of Navas' species can be made available, it would seem advisable

to retain these species as names only, without attempt to reduce them to synonymy with previously described species, or to assign any other specimens to these species. The identity of the type species of the genus, *latipennis* Wlk., is difficult to determine with certainty. Eaton's figures of the genitalia were made from dried specimens. Four of the twelve species described by Needham and Murphy, — *claudus*, *corumbanus*, *mutilus* and *striatus*, — are from female specimens only, and cannot therefore be correlated with any other species of the genus until or if the corresponding males can be determined. On the basis of the rather inadequate figure of the genitalia, *parishi* Bks. seems to belong to the genus *Tortopus* rather than to *Campsurus*. Burmeister's species *dorsalis* is quite unlike all other known species of *Campsurus*, and it is probable that it, too, should be transferred to *Tortopus*, under which genus both *parishi* and *dorsalis* are here considered.

Needham and Murphy² found that certain venational characters were "unexpectedly trustworthy": (1) "the general abundance or scarcity of cross veins", and the distribution of these veins in different areas of the wing; and (2) the relations of the longitudinal veins to one another, particularly the relation of the proximal end of M_2 of the fore wing (in their paper termed Cu_2) to Cu_1 , or to the bisector of the median fork. They found "two fairly well-marked sections in the genus": (1) M_2 of fore wing intermediate between Cu_1 and the bisector of the median fork, often joined to this bisector; the anterior median border of the prothorax elevated to form a triangular hump which "fits against the rear of the head"; and (2) M_2 of fore wing "more closely approximated to" Cu_1 , often seeming to arise from it; no such elevated hump present, the anterior margin of the prothorax "smoothly truncate". They present a key to eighteen species of the genus, based largely on venational characters. None of Nava's species are included in this key; also missing are *parishi* Bks., *decoloratus* Hag., *quadridentatus* Etn., *albicans* Perch., *truncatus* Ulm., *dorsalis* Burm., *wappaei* Weyenb., and *nappii* Weyenb. They do not make use of the parallelism stated to exist between the position of M_2 at its base, and the presence or absence of an elevated anterior margin of the prothorax.

In actual practice, this key is neither as simple as it seems, nor as easy to use. Several questions arise in connection with it. (1) Is there a constant parallelism between the presence of a prominent prothoracic hump and the intermediate position of M_2 ,

and is absence of such a hump always correlated with an M_2 closely associated with Cu_1 ? (2) Is it always possible to determine unhesitatingly the group to which a given specimen should be assigned, on the basis of this venational character? Is there as great a constancy in the location of M_2 proximally, in most species, as the authors of the key indicate to be the case in *corumbanus*? Is the location of M_2 proximally always the same in the two wings of a single specimen? (3) Is it always possible to say with certainty that a specimen does or does not have a prominent prothoracic hump? (4) Are species with genitalia of similar type thrown into the same or different groups, using a key based on the relative position of M_2 ? After an examination of all the type material of the Needham and Murphy species, and of many other specimens of *Campsurus* from other sources, and many attempts to work out a correlation such as is suggested by Needham and Murphy, the writer answers these queries as follows. (1) There is no such constant correlation between prothoracic hump and position of M_2 at its proximal end, as Needham and Murphy state. It does occur in many, but by no means in all cases. Thus, in *decoloratus* Hag., a definite prothoracic hump is present, but M_2 is more closely associated with Cu_1 than with the bisector, and in some of the wings examined appears to arise from it. In *Campsurus* sp. B, of this paper, nothing worth calling a hump is present, but M_2 is definitely in the intermediate position. (2) It is often very difficult to say whether or not M_2 should be considered intermediate or when it is more closely associated with Cu_1 . Even on the two wings of the same specimen, it is often possible to consider one wing as of group 1, the other wing of group 2. Thus, Figs. 1 and 1b of Neotropical Mayflies indicate that in the species *evanidus*, on the basis of the proximal position of M_2 , some specimens would fall in one and some in the other of the two sections indicated by Needham and Murphy. They assign their species *violaceus* to group 1, but an examination of the type material shows M_2 closely approaching Cu_1 (in some cases, seeming definitely to arise from it), although connected to the bisector by a cross vein. Indeed their own figure shows this close approximation of M_2 to Cu_1 . Of the wings of four specimens of *decoloratus* examined by the writer, those of one specimen only were alike on both sides. (See note under *decoloratus*). This character, — the position of M_2 proximally, — is so difficult of interpretation that there are many specimens which could as

well be assigned to one group as to the other. (3) In many instances, a definite and prominent prothoracic hump is present. But there are others, particularly dried specimens, in which it is very difficult to decide whether or not there is an actual hump. Again, a difficult character, likely to be interpreted differently by different workers. (4) On the basis of interpretation of venation, Needham and Murphy placed in different groups the two species *violaceus* and *notatus*, which have extremely similar genitalia. Likewise *pallidus* and *major* are placed by them in different groups, although the genitalia have much in common. Spieth⁴ states that on the basis of venation, his species *pedicellarius* "belongs to the same section of the genus as do *segnis* and *pallidus*". Yet the genitalia are so similar to *lucidus* as to indicate a very close relationship between the two species, if indeed *pedicellarius* is distinct from *lucidus*, — and *lucidus* is placed in group 1 by Needham and Murphy, who described it. Considering the difficulties of interpretation involved, it would seem that neither venational characters nor the correlation of these with the prothoracic hump, will solve the problem of the relationships of the different species of *Campsurus*. Genitalic structures seems the only trustworthy character, — and we are far indeed from an answer to the problem, if this be so.

The structure of the genitalia in this genus is quite complicated, and its several parts are not easily correlated with those of other genera. Eaton⁷ considered that the unsegmented forceps arise "each from a separate basis above and distinct from the posterior ventral margin of the 9th segment, and not upon a deflexible lobe prolonged from the margin". Needham and Murphy interpret this basal piece as the basal joint of the forceps. We follow this latter interpretation. This basal forceps joint may be more or less conical or cylindric, the terminal joint arising from a slight excavation on its outer margin (as in *albifilum*, *pallidus* and *major*); it may be an elongated modification of the above, but possessing now a definite rounded projection on its inner margin (as in *decoloratus*, *violaceus* and *notatus*); or it may be cleft almost to its proximal margin (from which cleft the terminal joint of the forceps arises) with a long outer and a short inner projection continuing beyond the insertion of the terminal joint (as in *latipennis*, *jörgenseni*, *scutellaris* and *segnis*). The terminal joint of the forceps consists of a long slender process, usually more or less spatulate near the tip, and covered with short hairs in that area. In the third group indicated

above, the relative length and thickness of the outer and inner projections of the basal joint may be of specific value. The penes in turn are borne on basal pieces each of which is more or less arched. The part to which the penes are attached is usually triangular, the two triangles united in whole or part at their middle line. From these triangular pieces the remainder of the basal piece arches forward and downward and is attached at the base of the forceps on each side. The entire penis base is therefore horseshoe-shaped. The penes appear to be much more soft and flexible than their bases. Often two or more parts are recognizable in each penis division (as in *scutellaris*), when each may end in a finger-like projection. Again each division may consist of a single incurved crescentic piece, the tips of which frequently overlap (as in *notatus*). Many other variations occur. In all, however, there seems to be a tendency under certain circumstances for the penes to fold forward on their bases, overlapping the 9th segment, leaving the triangular penes bases as the most distal and most prominent part of the genitalia. This would seem to be the explanation of the unusual figure presented by Needham and Murphy for the genitalia of *major*. As noted under the discussion of that species, the penes were wholly lacking from the type specimen. Another interesting structure, perhaps relating to the genitalia, occurs in at least one species, — *duplicatus* Sph., — paired forceps-like processes on segment 10. Spieth¹ suggests that these are used in copulation. When in due time accurate figures of the genitalia of all described species of this genus have been made available, certain of the above-mentioned characters should prove useful as the basis for a new key to the species, or as useful supplements to the venational and prothoracic characters noted above.

Two main difficulties are encountered in studying the genitalia of *Campsurus*. First, as in mayflies in general, is the discrepancy in appearance between dried specimens and those from which the genitalia have been removed and treated with potash. Many of the published figures were probably drawn from dried specimens, in which a considerable distortion of the parts often occurs. Secondly, there is considerable variation in the genitalia of the same species, both in dried specimens and in those treated with potash. As indicated in the preceding paragraph, the penes tend to fold forward over the 9th segment; sometimes, too, they fold around or over one another. Again, one or both divisions of the penes may be twisted laterally. Thus it is impossible to

show in a single sketch all aspects which the genitalia of one species may assume. Several figures are presented which illustrate these points. It begins to be apparent, too, that allied but different species may possess very similar genitalia. Note the likeness between: (1) *notatus* and *violaceus*; (2) *segnis*, and Dr. Ulmer's unnamed species from Brazil; (3) *jörgenseni* and *scutellaris*. See also the several species with genitalia of the *latipennis* type which are described in this paper.

Many species of *Campsurus* are strikingly similar in color. The majority have pale yellowish or whitish abdomens, with or without dark markings, although in a few species almost the entire body is brownish. Coloration of the following parts of the body is of use in identification: (1) base of antenna; (2) anterior and posterior margins of head, and area between the eyes; (3) dark shading or definite streaks and markings on abdomen; (4) fore legs of male; (5) in some species, venation of wings, or tinted wing membranes. Color characters in general are probably of much less value in this genus than in many others, however. Almost nothing is known of the length of the emergence period of any one single species, and of the possible seasonal variations both in size and coloration for a given species. Hence even the lengths of wing and body of the type specimens may not delimit a species with accuracy.

Notes on the Needham and Murphy Species

Campsurus lucidus (p. 16, Neotropical Mayflies)

A new figure of the genitalia of this species is presented, from type material *not* treated with potash (Fig. 1). Note the small rounded "electric light bulb" structure just below the apex of each penis lobe. In the holotype (Fig. 1) these structures are asymmetrical, the lobe on the right side of the drawing being distorted in drying. Note also the very long slender outer projections of the basal joint of the forceps. Fig. 2 shows the normal appearance of the genitalia after treatment with potash; this specimen, taken by J. C. Bradley at Rio Putumayo, Peru, Aug. 14, 1920 (same data as holotype) was not designated as a paratype, nor mentioned in Neotropical Mayflies, but is labeled in Dr. Murphy's handwriting, "*C. lucidus*". I propose to designate this as a paratype. Two tooth-like projections occur near the apex of each penis lobe, in this specimen; likewise the 9th sternite seems to show the median notch mentioned (but not well seen in the holotype) in the description of the species. It

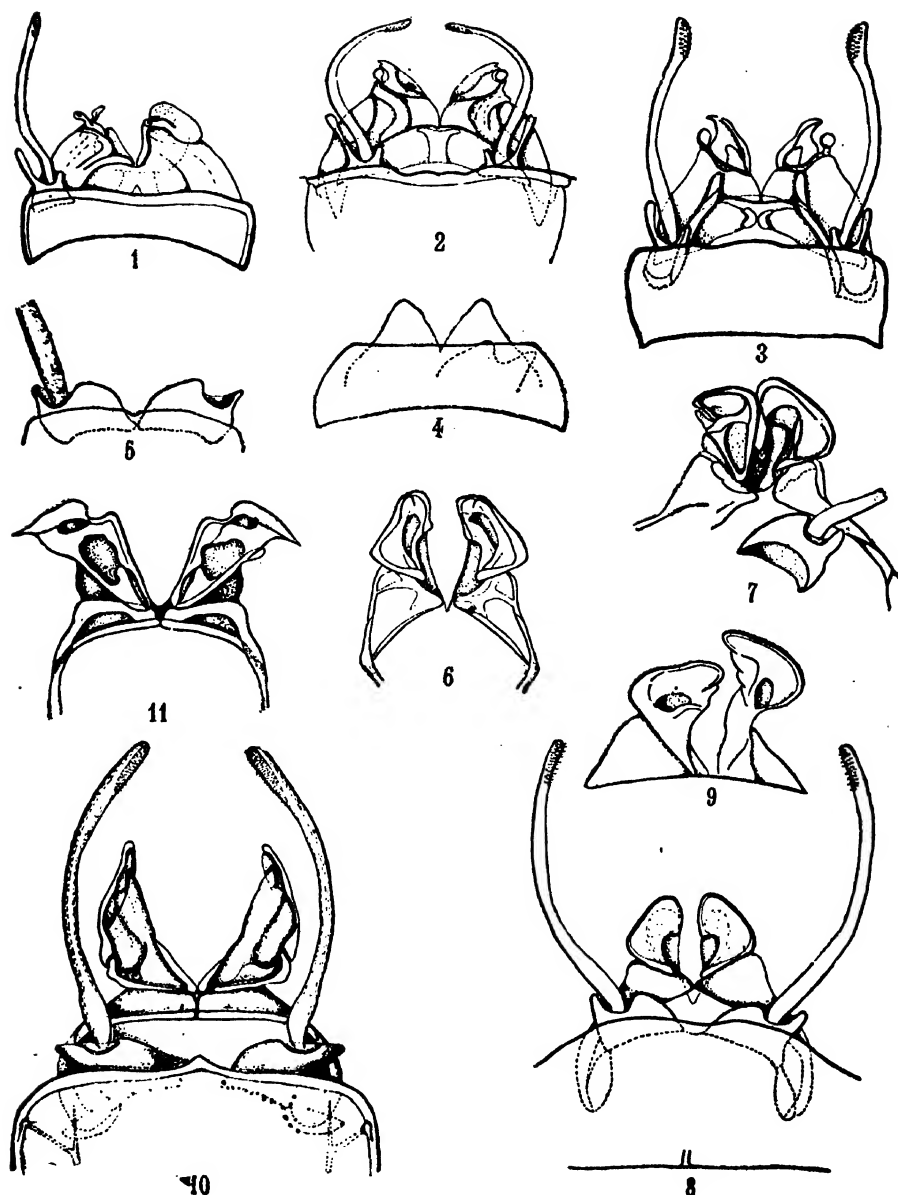


Fig. 1. *Campsurus lucidus*. Male genitalia of holotype, from original mount, not treated with potash. — Fig. 2. Same. Male genitalia of specimen here designated as paratype. — Fig. 3. Same. Male genitalia. Specimen from British Guiana. — Fig. 4. *Campsurus major*. Portion of male genitalia of holotype, from original mount, not treated with potash. Note absence of penes. — Fig. 5. Same. Forceps base and portions of forceps of specimen here designated as paratype. — Fig. 6. Same. Penes and penis base; male genitalia of second specimen here designated as paratype. — Fig. 7. Same specimen as shown in Fig. 5. Penes and penis base, also basal joint of forceps on one side. — Fig. 8. Same specimen as shown in Fig. 6. Lateral portions of forceps base omitted. — Fig. 9. Same. Male genitalia of third specimen here designated as paratype. Penes and portion of penis base only. — Fig. 10. *Campsurus evanidus*. Male genitalia of holotype, from original mount. Not treated with potash. — Fig. 11. Same. Male genitalia of specimen here designated as paratype. Penes and portion of penis base only. Note rotation of penes, as compared with Fig. 10.

may be that Fig. 30 in *Neotropical Mayflies* was prepared from this specimen, as it bears very little resemblance to the genitalia of the holotype as the latter appear now.

Specimens which vary slightly from the above, but possess the lateral round "bulb", and long slender outer projections of the basal forceps joint, are present in the Cornell Collection from Rockstone, British Guiana (June 25-30, 1927; P. P. Babi, Coll.). The genitalia of one of these specimens, treated with potash, is shown in Fig. 3. Only one toothlike projection occurs here, near apex of each penis lobe. Another specimen, from Bartica District, British Guiana (H. S. Parish, Coll.) seems also to be of this species; in this specimen, the penes are folded down over their bases, even more than in the case of the holotype. In the British Guiana specimens, the penes are strongly reminiscent of those structures as shown in Spie th's figure of his species *pedicellarius*, but in none of them is the 9th sternite split as indicated for the latter species. I consider these specimens from British Guiana to be of the species *lucidus*, in spite of the minor differences noted. It is likewise a question whether *pedicellarius* is in reality a valid species, distinct from *lucidus*.

Campsurus major (p. 17)

The wings of the holotype are broken at the tips, hence only an estimate can be made of their length, but 20 mm., as recorded in the original description, is certainly too long. Other specimens in the Cornell Collection, not mentioned in *Neotropical Mayflies*, but taken at the same time and place as the holotype of *major*, seem to be of this species. Wings and genitalia of three male specimens are mounted on slides, remaining parts unfortunately cannot now be located. The slides bear, in Prof. Needham's handwriting, the notation: "Baer — Male *Campsurus* — Buenos Aires — Dec. 16, 1898". I consider these specimens to be *C. major*, and designate them as paratypes. The wings of these males measure 16 mm. each; hence the aforementioned 20 mm. would seem to be a typographical error. As regards the figure of the genitalia presented with the original description, it is so unlike all other known species of this genus, except those in which the penes are missing or folded forward, as to suggest immediately that the specimen was abnormal or defective. A portion of the genitalia of the holotype, as drawn from the type slide (not treated with potash) is shown in Fig. 4. The specimen was evidently imperfect at the time the slide

was made. Genitalia of one of the three males I consider paratypes, when treated with potash, shows the following structures (Figs. 6 and 8); a second one, similarly treated, is shown in Figs. 5 and 7; while the third is indicated in Fig. 9. In each of these specimens, it will be noted that the basic portion of the penes resembles the most distal portion of the figure given for the holotype (Fig. 28, Neotropical Mayflies). For this reason I consider that drawing to be of an imperfect specimen, whilst Figs. 5 to 9 of this paper are considered normal and accurate representations. A resemblance in type may be noted, between these new figures of the genitalia of *major*, and the published figure of the genitalia of *argentinus* Esb. Petersen⁸, particularly in the structure of the forceps base. This type of basal joint of the forceps occurs also in *albifilum* Wlk., *truncatus* Ulm.; *pallidus* Ndhm. and Murphy, and *brasiliensis* Traver.⁹

Campsurus evanidus (p. 18)

The wing of the holotype specimen measures 10 mm., that of the allotype 12 mm. (measurements in Neotropical Mayflies include several specimens of each sex). Genitalia of the holotype, not treated with potash, are shown in Fig. 10. At least one of the other males among the type material has very similar genitalia, but in one of these specimens (all of which I propose to designate as paratypes) the penis division on each side has been rotated so that its parts are the reverse of those shown in Fig. 10. This specimen is indicated in Fig. 11. This is an excellent example of the difference in appearance of the genitalia of a single species, due to changes in position of these parts.

Campsurus violaceus (p. 18)

The wing of the holotype measures 11 mm., that of the allotype 13 mm. (not 10 and 14 respectively, as in the original description). As noted previously, this species seems to the writer to fall into the second division of the Needham and Murphy key rather than into the first part, where it was placed by them. As might be expected from the great similarity in appearance of genitalia of this species and *notatus*, this change would place the two species quite close together. The genitalia of the holotype, not treated with potash, are shown in Figs. 12 and 13. I designate as paratypes the other specimens mentioned by Needham and Murphy.

Campsurus scutellaris (p. 19)

The new figures of the genitalia of the holotype herewith presented (Figs. 14 and 15; genitalia *not* treated with potash) show a striking similarity to the same structures in *jörgenseni* Esb. Pet.⁸ These figures are made from the original slide.

Campsurus segnis (p. 19)

Wing of the holotype, 8 mm.; those of the other two male specimens in the type material, from British Guiana, are each 7 mm. in length, as given in the original description. Fig. 16 shows details of the genitalia of a specimen of this species from Rockstone, Essequibo River, British Guiana, taken June 26, 1927 (P. P. Babi, Coll.). Several other specimens of this species were taken by the Cornell University Entomological Expedition to British Guiana in 1924, at Kartabo, Bartica District, in May and June. While the species seems at first glance to be unique in its type of genitalia, care must be exercised not to place here all specimens with apparently similar genitalia, unless the insects under consideration are similar in appearance to *segnis*. Thus, a number of specimens from Brazil, sent by Dr. Georg Ulmer of Hamburg, Germany, to Prof. Needham for comparison with type material of *segnis*, might be considered that species, on the basis of a not-too-critical examination of the genitalia. But the insects themselves are fairly large and yellowish, not at all like the small dark-colored *segnis*. The genitalia of Dr. Ulmer's specimens are figured in Figs. 17 and 18. These specimens probably represent a new species, which it is left to Dr. Ulmer to describe, at such time as the specimens can be returned to him. Note that in their key, Needham and Murphy refer to *segnis* as a pale species, yet their description calls for one almost uniformly brown. I designate as paratypes the other specimens mentioned by Needham and Murphy.

Campsurus pallidus (p. 20)

The writer interprets the position of M_2 in the fore wing of the holotype as intermediate, and joined by cross veins both to the bisector and to Cu_1 . This would place the species near *major*, to which it is seemingly allied by type of genitalia. From the slide of the genitalia of the holotype, the following figure

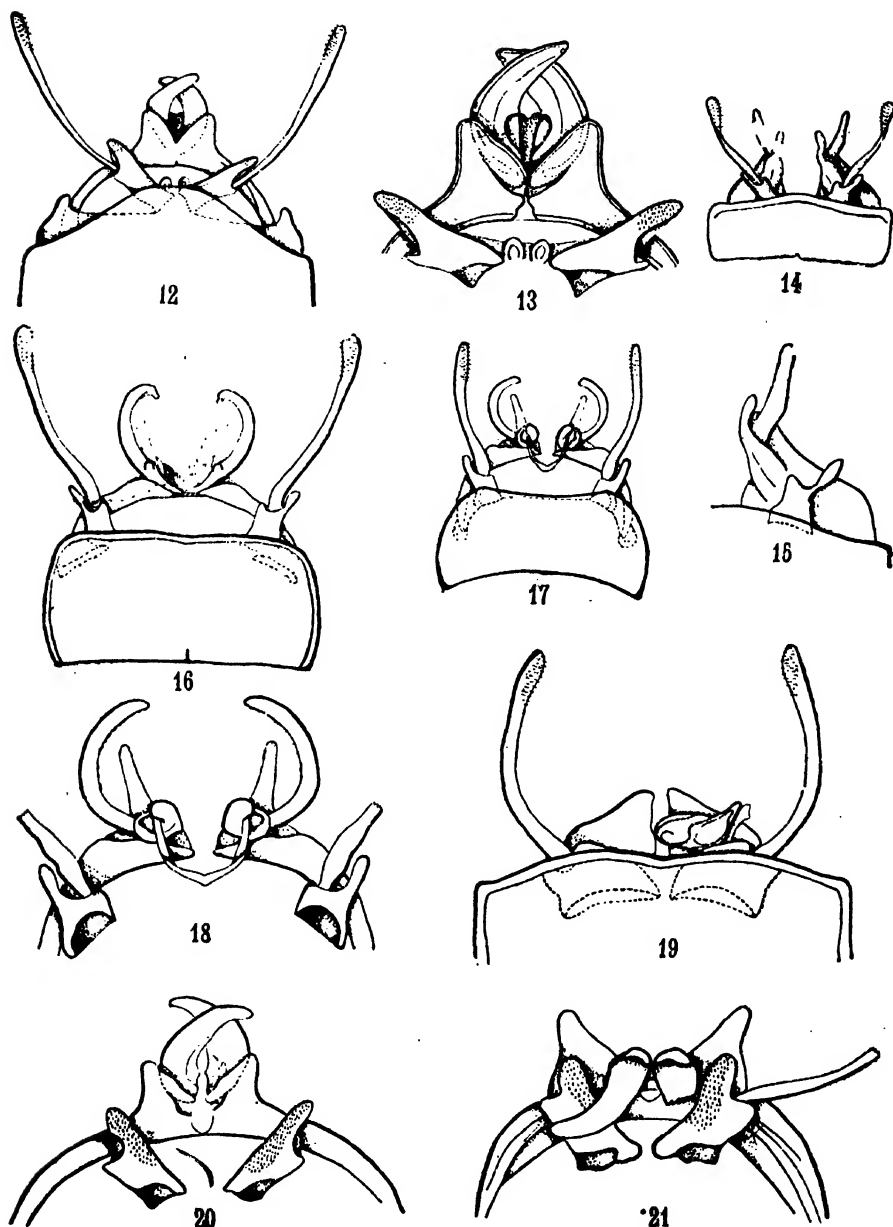


Fig. 12. *Campsurus violaceus*. Male genitalia of holotype, from original mount, not treated with potash. — Fig. 13. Same. Penes and penis base; enlarged. — Fig. 14. *Campsurus scutellaris*. Male genitalia of holotype, from original mount, not treated with potash. — Fig. 15. Same. Penis and base of one side, enlarged. — Fig. 16. *Campsurus segnis*. Male genitalia of specimen from British Guiana. — Fig. 17. *Campsurus* sp. Male genitalia of Dr. Ulmer's undescribed species. Compare with Fig. 16. — Fig. 18. Same, showing penes and penis base enlarged. — Fig. 19. *Campsurus pallidus*. Male genitalia of holotype, from original mount, not treated with potash. Note absence of one penis lobe, and remaining one folded forward on its base. — Fig. 20. *Campsurus notatus*. Male genitalia of holotype, from original mount, not treated with potash. — Fig. 21. Same. Male genitalia of large specimen here designated as paratype.

is presented (Fig. 19). It is apparent that the penes have been folded forward upon their bases, so that their normal appearance cannot be determined unless the genitalia should be removed from the slide and treated with potash, then remounted. This has not been done, lest injury result to the one and only type specimen. Evidently the genitalia shifted position in the mounting medium after the original figure was made (compare Fig. 19 with Fig. 26 of Neotropical Mayflies). Note that the basal forceps joint and the bases of the penes are quite similar in type to corresponding parts of *major*, although the penes seem to differ in the two species.

Campsurus notatus (p. 20)

Type specimens of this species are of two sizes: two are large, two smaller. Body of holotype measures 12 mm., wing 10 mm.; for the other large specimen, 13 and 11 respectively. The two smaller specimens measure but 9 mm. for body and 8 mm. for wing, however. Two new figures of the genitalia are presented. Fig. 20 is from the holotype, not treated with potash. Fig. 21 represents the genitalia of the other large type specimen, after treatment with potash. Note the typical appearance of genitalia when the penes are folded forward on their bases, as seen in Fig. 21. The smaller specimens are somewhat darker than the large ones, but have the same types of markings and similar genitalia. Note the similarity between the genitalia of this species and those of *violaceus*. This species, although close to *violaceus*, seems to be distinct from it. I designate as paratypes the other three specimens mentioned by Needham and Murphy.

Campsurus corumbanus (p. 21)

As noted in the original description, there is a great variation in wing lengths (14 to 19 mm.) in the many specimens which are assumed to belong to this species. The variation proves to be even greater than noted in Neotropical Mayflies, since the wing of holotype is but 10 mm. in length. It does not seem probable that such a wide range in size (based on wings, not bodies) would be likely to occur among specimens of the same species taken at approximately the same season of the year. It is more probable that two species are here represented. Yet again, we have no knowledge of the range of variability to be expected among specimens of any single species of this genus. The species was described from females only.

Campsurus mutilus (p. 22)

The length of wing of the holotype is 15 mm. Females specimens only.

Campsurus striatus (p. 22)

Measurements as indicated in the original description. The species was described from a single female specimen.

Campsurus claudus (p. 23)

Measurements as indicated in the original description, which was based on two female specimens.

Notes on Species by Other Authorities

Campsurus decoloratus Hagen

New drawings (figs. 22 and 23) of the genitalia of this species are presented, as the figure given in Biology of Mayflies is very sketchy and does not show clearly the relationships of the different parts. Figs. 24 and 25 show variations in the position of M_2 in the fore wings of two specimens of this species.

Campsurus duplicatus Spieth

Two male imagoes of this species are present in the Cornell Collection, presumably from British Guiana, but no data can be found associated with them.

Campsurus albifilum Walker

The genitalic figure given by Banks¹⁰ for the Brazilian specimen he identified as *C. dorsalis* seems to be that of *albifilum*. Certainly it is in no way related to the true *dorsalis*, as Ulmer¹¹ has shown the genitalia of that species to be.

Campsurus latipennis Walker

Eaton⁷ figures the genitalia of this, the type species of the genus, evidently from dried specimens. Banks¹⁰ figures these appendages (also apparently from a dried specimen) from material he examined that was taken in Brazil, and which agreed well with Eaton's description as to size and markings.

In the material collected by the Cornell University Entomological Expedition to British Guiana, there are a number of specimens of *Campsurus* which are allied to *latipennis* in type of

genitalia. One group of these specimens is being held tentatively under the name *latipennis*; two other groups are described as new species. Two others may represent new species, but for the present are designated merely as species A and species B. Most of the above specimens seem to have been dried before immersion in alcohol, resulting in much less fading and in less change of color than usually occurs in specimens preserved in alcohol immediately. This relative lack of fading has been verified by comparison with pinned specimens taken at the same time and place by the same collecting party.

? *Campsurus latipennis* Walker? In this group are three male imagos which have been immersed in alcohol for a long time, and evidently not dried before such immersion. A fourth specimen is pinned. Genitalia of the alcoholic specimens and the pinned one are very similar, but as there are some differences in color the two are treated separately.

Male imago. Pinned specimen. Body 7 mm.; wing 7 mm. British Guiana, Apl. 5, 1913. A rather stout specimen, as compared with the slender species called *C. essequibo*. Head purplish brown; antennal filaments pale. Thorax light reddish brown; pronotum and mesonotum darker than pleura; sternum yellowish. Margins of pronotum and V-shaped area at base of fore wing very narrowly blackish or very deep red-brown. Fore legs very dark reddish brown shaded with deep smoky; claws slightly paler, but definitely brownish rather than whitish. Costal margin of fore wing tinged very faintly with pale purplish gray in basal half. C, Sc and R purplish brown; other longitudinal veins very pale amber; cross veins fine, white. M_2 may probably be said to occupy intermediate position, although slightly nearer Cu_1 than bisector of median fork; basal end does not turn down toward Cu_1 . Abdominal tergites grayish. Mid-dorsal line and posterior margins shaded rather heavily with smoky gray-brown; narrow band of same shading along anterior margin. On each side, above pleura and between the darker bands, is a yellowish area. Pleural areas yellow shaded with blackish. Sternites paler than tergites; yellowish, with faint grayish lateral shading and rather indefinite grayish posterior margins. Tails missing. Genitalia as in Fig. 26.

Three male imagos immersed in alcohol. Body 8 mm.; wing 7 mm. Rather stout specimens, as compared with *C. cuyuniensis*, *essequibo* and species A. Head almost wholly dark red-brown, nearly black; posterior margin less heavily pigmented.

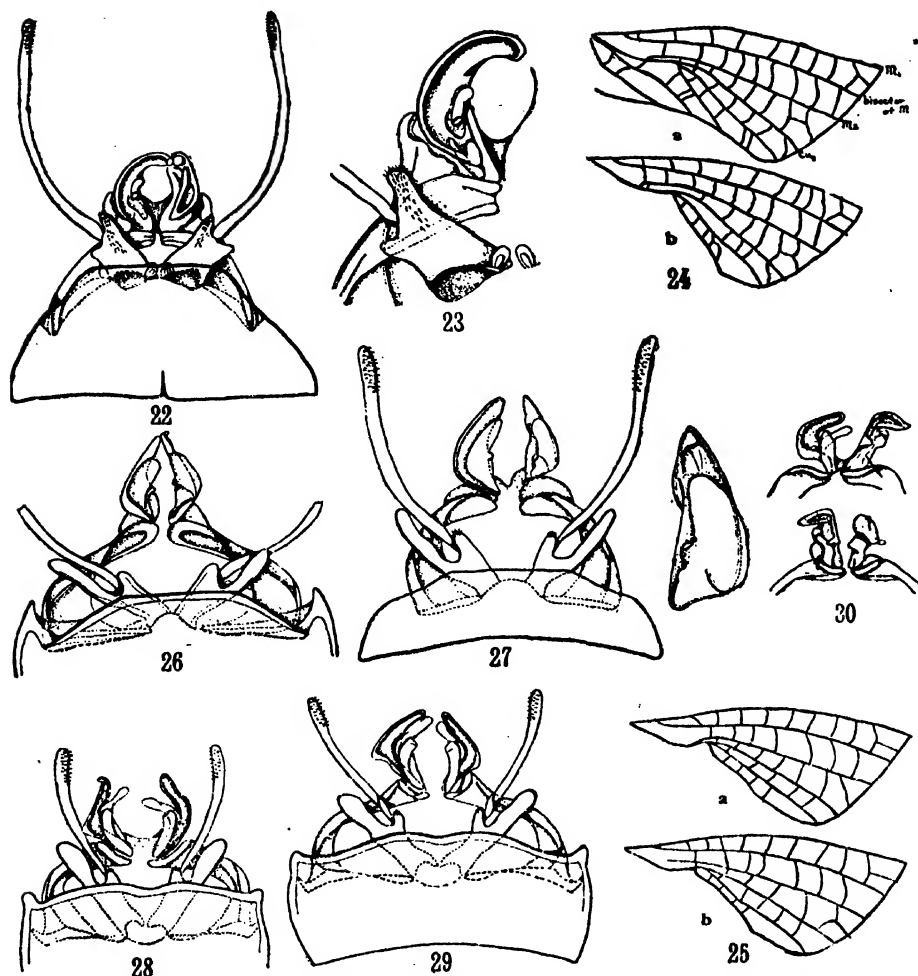


Fig. 22. *Campsurus decoloratus*. Male genitalia. — Fig. 23. Same. Details of one lobe of penis, penis base and basal joint of forceps. — Fig. 24. Same. Cubito-anal angles of (a) right and (b) left fore wings of specimen A. — Fig. 25. Same. Similar angles of (a) right and (b) left fore wings of specimen B. — Fig. 26. *Campsurus latipennis*. Male genitalia, from pinned specimen, after potash treatment. — Fig. 27. Same. Specimen in alcohol. — Fig. 28. *Campsurus cuyuniensis*. Male genitalia of holotype before treatment with potash. — Fig. 29. Same. Male genitalia of holotype after treatment with potash. Fig. 30. Same. Details of penes of two of the paratypes.

Thorax rather dark red-brown; sternum and pleura (in part) more yellowish. Fore legs brownish throughout length; femur and tibia red-brown, tarsal joints deep smoky, narrowly paler at joinings; claws grayish white. Veins Sc and R of fore wing brownish in basal half; all longitudinal veins yellowish. M_2 occupies intermediate position. Abdomen paler than thorax, yellowish brown with faint tinge of red, dorsally, each tergite

largely shaded with smoky. Tergites 2-7 with a C-shaped mark (or irregular triangle, its longest side on median line). Where C-mark is evident, head of C is near anterior margin; downward stroke along mid-dorsal line; tail extends across posterior margin until it turns dorsad to pleural margin, leaving paler triangle postero-laterally. Tergites 8 to 10 almost wholly brownish, except for yellowish antero-lateral angles. Narrow pale mid-dorsal line, bounded on each side by a dark streak (in dried specimen, such a streak might not be visible). Sternites paler than tergites, yellowish; in some lights, paler areas over ganglionic regions. Pleural patches red-brown, outer margin blackish. Tails white. Genitalia of one of these specimens shown in Fig. 27. Above specimens taken at Kartabo, British Guiana, May 1 and 21, 1924.

Eaton's description of *latipennis* calls for: "thorax fusco-luteous", "abdomen above very light umber-grey, more distinctly so in segments 4-10 than in others, with the joinings of the segments and the line of the dorsal vessel darker; venter testaceous; setae pellucid white. Fore legs sepia-brown, with white unguis". Body 7, wing 8. As neither the alcoholic nor the pinned specimens just described fulfil all the above requirements, it is quite possible that they do not represent the true *latipennis*.

It seems evident that genitalia of species of the *latipennis* group are quite similar one to another. Drawings from dried specimens would not bring out any small specific differences. Thus it is that genitalia of the four specimens just described, of *C. essequibo*, of *C. cuyuniensis*, of species A, and of species B, all bear much resemblance to the figures of *latipennis* as given by Eaton and by Banks. Yet specimens of each species mentioned differ quite markedly from one another, in size and coloration of body and in small details of genitalic structure. Therefore it is deemed best to hold these as separate species, until such time as more can be known about *latipennis*.

Campsurus pedicellarius Spieth

Evidently very closely allied to *lucidus*, if indeed it is distinct from that species. Genitalia differ from those of *lucidus* mainly in the deeply-cleft forceps base (which might be due to an artifact). As noted above, the species *lucidus* is represented in the Cornell Collection by several specimens from British Guiana. On the basis of venation, Spieth places his species in the

same section of the genus as "*segnis* and *pallidus*". See above for a discussion of this point. Wing same length as that of *lucidus*; body given as 8 mm. (*lucidus*, 6 mm.).

Notes on Undescribed Species of *Campsurus*.

1. *Allies* of *latipennis*.

Campsurus cuyuniensis, sp. nov.

A small yellowish species, allied to *latipennis*, but of smaller size. Distinguished from the specimens tentatively called *latipennis* by details of the genitalia, as well as by the color and size. Tips of penes blunt and finger-like; basal joint of forceps wider both in basal and apical portions, the outer apical portion relatively shorter and thicker.

Male imago (holotype). Alcoholic specimen. Body 5 mm.; wing $5\frac{1}{2}$ mm. Head deep red-brown on posterior margin, V-shaped area on vertex, and on under surface. Black line between eyes. Bases of antennae and frontal margin of head dark red-brown. Thorax red-brown with yellowish tinge; prothorax paler than remainder, more yellowish. Short triangular extension of anterior margin of prothorax covering only a small portion of posterior margin of head. Posterior margin of prothorax flaring, somewhat elevated above mesothorax. Narrow black markings on pleura, sternum, and carina of mesoscutellum. Median ventral line of thorax heavily shaded with blackish. Fore femur and tibia smoky brown; tarsus paler, yellowish; claws grayish white. *Sc* and *R* of fore wing purplish brown in basal half; other veins pale. M_2 of fore wing intermediate in position. A very faint tinge of yellowish on wing membrane. Abdomen paler than thorax, yellowish; tergites and sternites very similar, yellowish with faint smoky tinge. Intersegmental areas paler. Posterior margins of segments only slightly darker than preceding portions. Segments 9 and 10 darker, brownish black. Pleural patches distinct; outer margins of these outlined in blackish brown. Dorsad of each patch, a double row of blackish brown dashes, the row adjacent to the patch more conspicuous. Very pale mid-dorsal and mid-ventral lines, faintly margined on each side by dusky lines. Tails yellow. Genitalia shown in Figs. 28, 29 and 30. Note that 28 represents the genitalia of the holotype before treatment with potash, while 29 shows the same structures after treatment with potash. Evidently the genitalia of specimens

of the *latipennis* group are quite similar, in the dried and the treated condition.

Paratype males. In some of these, the head is largely shaded with blackish. Almost all of them have a more distinct yellowish tinge to the wing membrane than is the case in the holotype. In several of these males, the dark smoky tinge of the abdominal tergites is deepened into definite dark bands across the segments, usually one band near each margin; pale mid-dorsal line with its outlining black lines much more distinct also. Abdomen thus appears quite definitely banded, in the better-marked specimens.

Females. Twelve females, taken at the same time and place as the holotype and four of the paratypes, are presumably of this specie, although not associated with the males. Head and thorax paler than in the males; frons of head and bases of antennae yellow. Margins of sclerites outlining median areas of pro- and mesonota blackish. Sternites paler yellow than tergites, the latter heavily shaded with gray except for paler margins, mid-dorsal line, and transverse pale line in outer half of each lateral gray patch, near middle of segments. Body 6-7 mm.; wing 6-7 mm.

Holotype: Male imago, in alcohol. British Guiana, between Camaria and Matope on the Cuyuni River; July 23, 1924. Swarming, 4-5 p. m. W. A. Myers, collector. In Cornell University Collection.

Paratypes: Four male imagos, same data as holotype; size: body 5-5½ mm.; wing 5-5¼ mm. Five male imagos, labeled British Guiana, no other data; body 5½-6 mm.; wing 5½-6 mm. Four of these paratypes in Cornell University Collection, remainder in private collection of J. R. Traver.

Campsurus essequibo, sp. nov.

A slender, dark red-brown species. Allied to *latipennis* in genitalic type, but smaller than that species, and seeming to differ in certain details of genitalic structure.

Male imago (holotype). Alcoholic specimen. Body 6 mm.; wing 6 mm. Head, thorax and abdomen dark red-brown; pronotum yellowish brown; lateral and sternal borders of prothorax, and narrow markings at wing roots, blackish. Midsternal line of thorax black. Anterior margin of mesonotum, and metanotal scutellum, yellowish. Fore leg blackish brown; tarsus somewhat paler than femur and tibia; claws yellowish white. *C*, *Sc* and *R*

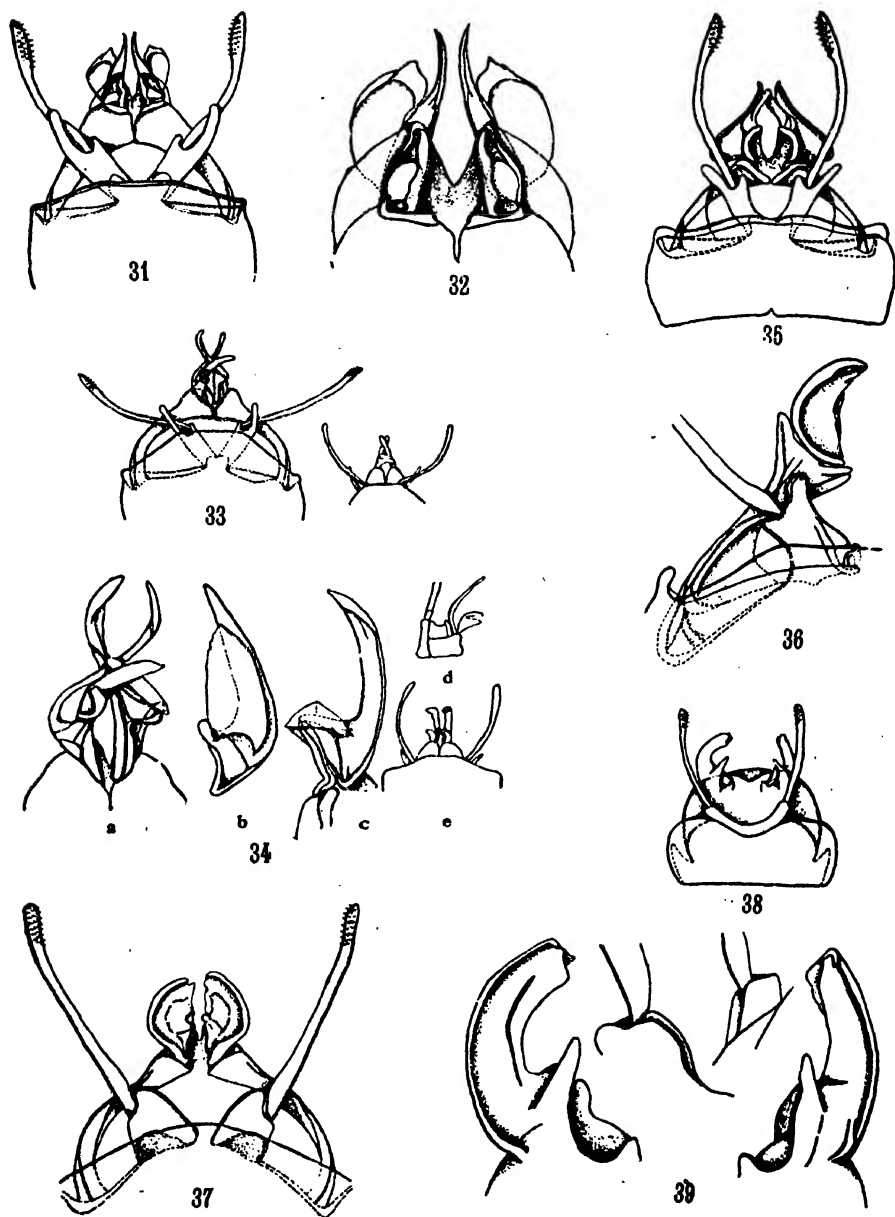


Fig. 31. *Campsursus essequeibo*. Male genitalia of holotype. — Fig. 32. Same. Details of penes, holotype. — Fig. 33. Same. Male genitalia of one of the paratypes. At right, sketch of genitalia (under binocular) before removal from body (dried specimen). At left, same genitalia after treatment with potash. — Fig. 34. Same. (a) Details of genitalia of specimen shown in Fig. 33; (b) and (c), details of penes of paratype from Mackenzie, June 23, 1927; (d) and (e), lateral and ventral aspects of genitalia of same specimen, (under binocular) before removal from body (dried specimen). — Fig. 35. *Campsursus species B*. Male genitalia. — Fig. 36. *Campsursus emersoni*. Male genitalia of holotype. — Fig. 37. *Campsursus species C*. Male genitalia. — Fig. 38. *Campsursus species D*. Male genitalia. — Fig. 39. Same. Details of genitalia: penes at right and left; basal portions of forceps, in center.

of fore wing purplish brown except in apical third; cross veins in costal space faintly yellowish, this space with very faint yellowish tinge. Other longitudinal veins of fore wing, and those in apical half of hind wing, yellowish in basal half or third; Sc and humeral cross vein of hind wing purplish brown at base; all other veins colorless. M_2 of fore wing occupies intermediate position. Abdominal tergites with quite wide black posterior margins and black midline. Outer margins of pleural patches narrowly black. Sternites shaded with blackish brown. Tails yellowish.

Male imago (pinned). One of the paratypes, taken Apl. 13, 1913. Head purplish black. Antennal filament pale reddish brown. Pronotum reddish brown, rather heavily shaded with blackish in lateral angles; margins and mid-dorsal line narrowly blackish. Mesonotum yellowish brown, scutellum red-brown. Metanotum likewise yellowish. Pleura red-brown; sternum slightly paler, mid-line blackish. Fore legs deep red-brown, shaded with deep smoky; tarsus somewhat paler than femur and tibia; claws pale yellowish white. Costal margin of fore wing tinged faintly with pale red-brown, most distinct in basal half of area; main longitudinal veins in this area red-brown in basal two-thirds, pale distally. Other veins pale. Abdomen darker than thorax; very little if any difference in color between tergites and sternites; red-brown, shaded quite evenly with deep smoky. Mid-dorsal line blackish; posterior margins of tergites slightly darkened. Pleural areas more reddish, but with heavy and extensive black shading. Tails missing. Genitalia shown in Figs. 33 and 34.

In two other pinned specimens studied, the meso- and metanota appeared reddish rather than yellow; pleural areas of abdomen almost wholly black. Tails (present on one of these) distinctly *yellowish*.

Holotype: Male imago (alcoholic). Rockstone, British Guiana, Essequibo River, June 25, 1927. C. U. Ent. Expedition. In Cornell University Collection.

Paratypes: Four male imagos, pinned: Apl. 12 and 13, 1927, British Guiana, and June 23, 1927, Demerara, Mackenzie River, British Guiana, taken by C. U. Ent. Expedition; Mch. 18, 1913, Bartica, British Guiana, taken by H. S. Parish. Two of these in Cornell Collection; two in private collection of J. R. Traver.

Campsurus species A.

Body 6 mm.; wing 6 mm. Alcoholic specimen. Much more slender than the forms held here as *latipennis*. Differs in coloration from specimen described as ? *latipennis*, as follows: Thorax pale reddish to yellowish brown, pro- and mesonota somewhat deeper in color. Femur and tibia of fore leg purplish brown; tarsus pale grayish yellow. M_2 of fore wing somewhat closer to Cu_1 than to median intercalary. Tails missing. Genitalia so similar to those figured as ? *latipennis* that no sketch of these structures is presented. Rockstone, Essequibo River, British Guiana, June 25, 1927 (same time and place as *C. essequibo*). Five other specimens taken in British Guiana (no date) by the C. U. Ent. Expedition, appear to belong here. The similarity of genitalic structure to that of the specimens held as ? *latipennis* may indicate that species A is merely a later-season form of the so-called *latipennis*.

Campsurus species B.

A slender brownish species, in which the abdomen appears to be definitely banded. Allied to *latipennis* and the three species just preceding. Body $5\frac{1}{2}$ mm.; wing $5\frac{1}{4}$ mm.

Male imago (alcoholic). Frontal margin of head pale; bases of antennae dusky; remainder of head deep brown. Thorax red-brown, paler than head but darker than abdomen (except apical segments). Prothorax not produced anteriorly into a hump. Anterior and lateral margins of pronotum, also anterior half of mid-dorsal area, heavily shaded with black. Sclerites anterior to wing roots dark-margined; one prominent black transverse bar here; other margins red-brown. Mesonotal scutellum very narrowly outlined in black. Narrow transverse black line across central area of metanotum. Prosternum shaded with black; prominent black line alongside bases of fore legs. V-shaped margining at anterior border of mesosternum black. Fore femur and tibia dark red-brown with blackish shading; tarsus paler, smoky brown, distal joint palest. *Sc* and *R* of fore wing red-brown in basal half; a few of the larger longitudinal veins yellowish near base; all other veins pale, except humeral vein and basal portion of *Sc* in hind wing. M_2 of fore wing intermediate in position, but joined to Cu_1 by a cross vein. Abdomen pale red-brown; tergites and pleural patches much shaded with smoky; tergites 8-10

almost wholly smoky red-brown. Shading on basal and middle tergites in form of diffuse band covering all of each segment except anterior and posterior margins and a narrow transverse strip on each side of each smoky patch, about center of segment. Narrow pale mid-dorsal line. Outer margins of all pleural patches, as well as most of central areas of those on 5 and 6, heavily shaded with smoky. Longitudinal black streak along inner margin of each. Sternites likewise shaded with smoky, but paler than tergites. Mid-ventral line of apical sternites faintly dark-penciled; lateral blackish streaks and prominent black pleural streak on these sternites. Tails yellowish with very faint reddish tinge; some of the more basal joinings indistinctly darker. Genitalia as shown in Fig. 35. Note that the basal joints of forceps are somewhat as in *segnis* and *scutellaris*. Lateral margins of penes more flaring than in allied species. In general, much more slender than the specimens held as ? *latipennis*; much darker than *cuyuniensis*, to which species it is most closely allied in genitalic structure; differs in details of genitalic structure from *essequibo*, which it most closely resembles in coloration.

Rockstone, Essequibo River, British Guiana, June 30, 1927, taken by C. U. Ent. Expedition.

Comments on the latipennis complex. — It is obvious that venational characters of *latipennis* Wlk., as shown in Eaton's Monography, Pl. 5, Fig. 8c, are very similar to those of the species described here as ? *latipennis*, *cuyuniensis*, *essequibo*, species A and species B. According to genitalic structure, *cuyuniensis* and species B form one group, *essequibo* a second group, and ? *latipennis* and species A a third group, of this complex. Whether or not any of these groups represents the true *latipennis*, cannot at this time be determined. Nor is it possible, with our very limited knowledge of the habits, life cycles, and lengths of emergence periods of members of the genus *Campsurus*, to determine how much variation in size and coloration may be evidenced by individuals of any one species. Enough details of genitalic structure are presented here, however, to indicate that more than one species is involved in this complex.

II. Allies of *notatus* and *decoloratus*.

Campsurus emersoni, sp. nov.

A very pale species, with yellowish thorax, creamy white unmarked abdomen, and pale fore legs.

Male imago (holotype). Alcoholic specimen. Body 11 mm.; wing 11 mm. Antennae yellowish white, the second joint very faintly tinged with smoky. Head yellow; ocelli black-ringed

at base; vertex and most of posterior area washed lightly with purplish brown. Anterior margin of prothorax slightly inflated, covering a portion of posterior margin of head. Prothorax bright yellow; faint brownish shading at base of fore leg; no other dark markings. Meso- and metathorax yellowish to flesh-colored; groove at anterior margin of mesopleura reddish brown; mesonotum very narrowly outlined in brown; median line of mesoscutellum brownish; narrow brown line above leg bases. Fore leg yellow; tarsus somewhat paler than tibia, which is paler than femur; very faint smoky tinge on base of femur, and all of tibia and tarsus; claws white. Wings white, hyaline; *C*, *Sc* and *R* of fore wing lavender as far as or slightly beyond bulla; all other veins colorless. Proximal end of M_2 nearer to Cu_1 than to median intercalary, appearing to arise from Cu_1 ; not connected at end by cross vein to intercalary. Abdomen very pale yellowish white; basal and middle segments translucent; apical segments more opaque, yellowish. Pleural patches yellowish. Pale mid-dorsal and mid-ventral lines. No dark markings. Genitalia of the *notatus* type, as shown in Fig. 36.

Female imago (allotype). Alcoholic specimen. Body 12 mm.; wing $12\frac{1}{2}$ mm. Grayish shading on head confined to a band between the lateral ocelli, from extensions that run forward to median ocellus. Otherwise similar to male except for faint grayish shading on each side of a wide pale mid-dorsal stripe on middle and apical abdominal tergites, and narrow grayish posterior margins on same tergites, next to these dark stripes, but not extending to pleural region; these margins darker on last three tergites. Tails missing.

Paratypes: Six other female imagos, also in alcohol. Body 12-15 mm.; wing 12-13 mm. Very similar to allotype; some slightly paler, one with a trifle more gray shading on tergites.

Holotype: Male imago (alcoholic). Barro Colorado Island, Canal Zone, July 7, 1935. Taken at light, 7.45 p. m. A. E. Emerson, Collector. In Cornell University Collection.

Allotype: Female imago. Same data. In Cornell Collection.

Paratypes: Six female imagos, same data. Three of these in Cornell Collection; three in private collection of J. R. Traver.

III. *Allies of major.**Campsurus* species C.

A yellowish-red species. Body of male imago, 6 mm.; wings missing. Anterior margin of pronotum appears to form hump over posterior margin of head. Head blackish; bases of antennae yellowish white. Pronotum yellowish, with reddish brown shading laterally; meso- and metanota light reddish brown. Fore femur and tibia smoky; tarsus whitish, the two proximal joinings blackish; claws yellowish. Abdomen yellow; apical tergites considerably shaded with reddish brown. Pleural patches paler red-brown, with narrow black pencilings on dorsal margin. No evidence of paler mid-dorsal line. Tails yellowish white. Genitalia as shown in Fig. 37. A single male imago from Bartica, British Guiana; no date. Taken by C. U. Ent. Expedition.

In terms of genitalia, this specimen is allied to *pallidus* and *major*, also to *brasiliensis*.

IV. *Allies of quadridentatus.**Campsurus* species D.

A red-brown species. Body of male imago $6\frac{1}{2}$ mm.; wing $7\frac{1}{2}$ mm. Head and bases of antennae suffused with black. Thorax and abdomen reddish brown. Narrow black pencilings at leg bases, on margin of fold extending to mesoscutellum, and on meso- and metascutella. Median area of thorax paler than surrounding areas. Pronotum much shaded with smoky; posterior margin blackish. Legs pale smoky; tarsal joinings and tip of tarsus whitish. Vein M_2 of fore wing runs backward directly into Cu_1 . Large veins of costal margins of both wings yellowish; all other veins silvery white. Abdominal tergites red-brown with dark shading; posterior margins of basal and middle tergites blackish. Paler mid-dorsal streak. Pleural patches outlined narrowly in black, most prominent along dorsal margin. Sternites yellowish, paler than tergites. Tails yellowish white. Genitalia quite distinctive, as shown in Figs. 38 and 39. In type of genitalia, this species is probably allied to *quadridentatus* Etn., but differs from that species in many details of genitalic structure as well as in its smaller size. It bears some slight resemblance to *segnis* also, but differs from it in important details of genitalic structure. One male imago, Kartabo, British Guiana, Apl. 17, 1924. Taken by C. U. Ent. Expedition. In Cornell University Collection.

This specimen most certainly represents a new species, but is not named at this time, due to the scanty and wholly inadequate material available.

Corrigenda.

In Part II of this series (Rev. de Ent. August 1947), Figs. 3 and 4 as given on page 151, are not correctly listed below the plate, but are really of *Thraululus primanus*, as stated in the text.

References

1. Needham, Traver, Hsu, 1935, Biology of Mayflies, Comstock Publishing Company.
2. Needham and Murphy, 1924, Bull. Lloyd Lib. Ent. Ser. 4, pp. 1-79.
3. Spieth, 1941, Amer. Midl. Nat. 26, p. 269.
4. Spieth, 1943, Amer. Mus. Nov. 1244, p. 4.
5. Ulmer, 1920, Stett. Ent. Zeit. 81, pp. 97-144.
6. Lestage, 1923, Ann. Soc. Ent. Belg. 63, pp. 113-124.
7. Eaton, 1883-87, Trans. Linn. Soc. London, ser. Zool. 3, pp. 1-352.
8. Esben-Petersen, 1912, Deut. Ent. Zeit., pp. 333-335.
9. Traver, 1944, Bol. Mus. Nac. N. Ser. Zool. N. 22, pp. 29-43.
10. Banks, 1912, Psyche 20, p. 84.
11. Ulmer, 1921, Arch. f. Natg. 87, p. 233.

More Flies of the Genus *Baccha* (Dipt. Syrphidae).

By F. M. Hull, University of Mississippi

Recent collections of flies submitted to the author contain a number of neotropical species of *Baccha* which are undescribed. This paper gives the descriptions of these flies. Types, except as otherwise mentioned, in the collection of the author.

Baccha titan, n. sp.

A large petiolate and vittate species with yellowish brown wings. Separated from *arx* Fluke by the much longer pile along the base of the abdomen and the absence of a medial yellow stripe. Length 17 mm.

Male. — **Head:** vertex opaque black, slightly yellowish pollinose upon a round small spot at the upper eye corners; the vertical pile is thick and black and placed in several rows. All of the occipital pile is yellow, except four or five black hairs some-

times present along the lateral excavation; none of the occipital pile is scale-like. The front is nearly opaque, brownish yellow with a conspicuous, acute, brownish black triangle situated near the middle upon the upper half. The apex of the triangle touches the junction of the eyes and there is a transverse, oval spot similar in color lying just above the antennal callus. The antennal callus is polished brownish yellow with a large, purplish black, posteriorly rugose, shield-shaped spot in the middle of the callousity. Face brownish yellow, the lateral third yellowish white pollinose and both face and front thickly black pilose; cheeks yellow. The antennae are somewhat elongate and pale brownish orange; thickly black pilose on the first two segments; the upper third of the cylindrical third segment is dark brown; the arista is brown on the basal half, blackish apically. *Thorax*: mesonotum greenish to olivaceous black except widely along the lateral margins and notopleura which together with the humeri and post calli are ochraceous; the dark portion of the mesonotum has two broad, yellowish brown pollinose vittae, widely separated and posteriorly attenuate which do not quite reach the scutellum. In the middle there is a slender, centrally widened vitta which also does not quite reach the scutellum; viewed posteriorly it has a darker line through the center of the posterior half; viewed anteriorly it changes to a single line, more narrow, which is brighter in color and becomes a part of a divergent darker stripe. The mesonotum viewed anteriorly has eight narrow, linear, dark stripes in addition to the two wide, knife-shaped or spear-shaped pollinose vittae. Viewed posteriorly there are four very wide, dark brownish black stripes in addition to the yellowish brown pollinose stripes. The pleura are shining ochraceous, the anterior border of the mesopleura, the lower portion of the sternopleura, hypopleura and the posterior part of the mesopleura diffusely metallic blackish. The squamae are sepia with brownish golden fringe; halteres sepia with orange brown knob. The scutellum is brownish ochraceous, the base narrowly yellow pollinose; the pile of the disc is fine and erect and moderately short; ventral fringe composed of over twenty pairs of long blackish hairs. *Abdomen*: quite petiolate the basal half of the first segment yellowish and also the quite convex sides. The posterior part is blackish brown, the pile long and thick and black. The second segment is over three times as long as its least width but is a little wider at the apex than at the base; its pile is quite long and black. The color of the second segment is brownish black, nearly opaque dorsally and posteriorly

and the sides of the segment near the base on the basal half become gradually lighter brown but never yellow; a short distance from the apex there are a pair of prominent, subtriangular, yellowish spots which are widely separated in the middle. The third segment is black with a large, basal, sublateral, yellow triangle which on the medial surface is connected to a prominent yellow vitta on each side; the two vittae are widely separated and end sharply and obliquely some distance from the posterior margin of the segment. Fourth segment with quite similar pattern, the basal triangle equally wide but short with similar submedial vittae which, however, narrowly reach to the apex of the segment and which on its postero-lateral corners are linearly produced backwards for a short distance; fifth segment with quite small basal triangles and with prominent submedial, slightly convergent vittae which are not connected with the outer sublateral triangles. The outer lateral basal triangles of the segments are usually continued sublaterally down the segment to the posterior margin but these stripes may be interrupted. Fourth and fifth segments emarginate; all of the abdominal pile black. *Legs*: anterior femora brownish yellow posteriorly, pale brown anteromedially where from some angles the middle of these femora show an elongate yellow streak; their posterior pile is longer and black, their anterior pile yellow and appressed. The anterior and middle tibiae and tarsi are wholly yellow and yellow pilose. The middle femora are much as the anterior ones, but the anterior surface without a distinct yellow streak; the posterior femora are sepia except the yellow apices; the pile is thick and black and appressed and rather long; the hind tibiae are black except the apical fifth and the extreme base, the pile jet black on the black area. The hind tarsi are entirely pale yellow with pale golden pile. *Wings*: wholly and rather evenly tinged with yellowish brown; the second basal cell is a little paler and slightly more yellowish, the pterostigma is a darker shade of brown, the third vein is deeply concave in the middle on the anterior surface, the preanal spuria is quite distinct.

F e m a l e . — Rather similar to the male; the posterior half of the vertex behind the ocelli is opaque black in the middle, brownish yellow pollinose on the sides, the acute triangle on the upper half of the front is linearly connected to the blue green, transverse oval spot, the dark areas upon the pleura are almost completely eliminated leaving the pale areas much more extensive and the hypopleura entirely pale. The abdomen is similar but is more widely oval; the sublateral basal triangles on the third

segment have a posterior extension that reaches down half the length of the segment and is attenuated. On the fourth segment the sublateral extension reaches almost to the apex of the segment; the submedial vittae of the third segment and fourth segment are divergent posteriorly. The yellow spots on the posterior part of the second segment are shaped like slender, pointed leaves placed obliquely; the base of the segment is a little more yellowish brown, the posterior part of the abdomen more widely oval.

Holotype: a male, and allotype female from Nova Teutonia, Brazil, collected by Fritz Plaumann. three paratype males and one paratype females with the same data. Type and allotype in the collection of Dr. C. L. Fluke; paratypes in the collection of the author and of Dr. Fluke.

Baccha druïda, n. sp.

A large, ochraceous and vittate species, with wings deeply tinged with yellow and brown; related to *arx* Fluke but considerably more slender. Length 17 mm.

Male. — *Head*: the ocellarium is considerably more prominent than in *titan*; it is opaque black, becoming narrowly brownish yellow pollinose behind; the pile is black and situated in several rows which are not as wide as in *arx* or *titan*. The occipital pile is fine and yellow with three or four black hairs upon the shallow, lateral excavation. The front is opaque, ochraceous brown; on the upper half there is a wedge-shaped triangle at most only linearly connected to the eye junction and below, beginning at the transverse crease, there is a short, transverse, bluish green spote lying in front of the antennal callosity. Callosity yellowish with large, central, polished purplish or cupreous black spot which is partly striate, partly micropunctate on the upper half. Face yellowish ochraceous, the eye margins narrowly yellowish white pollinose; the tubercle is distinctly sharper than in *titan*. The pile of both the face and front is black. The antennae are elongate and reddish orange, the third segment narrowly brown above, the first two segments thick black pilose, the arista brown but lighter basally. *Thorax*: mesonotum viewed from behind with four wide black vittae; the medial pair are narrowly separated and divergent posteriorly and do not reach the scutellum; in addition there are three brownish yellow pollinose bands, the outer pair quite wide and reaching quite narrowly to the scutellum, the medial one narrow and also reaching the scutellum. The pleura are yellowish

ochraceous, the anterior half of the mesopleura, the greater and lower part of the sternopleura and the posterior half of the hypopleura and metapleura are diffusely metallic blackish; the squamae are light ochraceous with similar fringe, halteres ochraceous brown with knob reddish. The scutellum is ochraceous brown, a little lighter on the margin, the sloping base widely light yellow polinose; the disc almost sepia when viewed obliquely, its pile sparse, erect and rather short, the ventral fringe consists of about twelve pairs of long black hairs. *Abdomen*: the first segment is widely yellowish upon the sides with only moderately abundant blackish pile and a few red hairs below and anteriorly; in the middle and posteriorly the segment is brownish black; the second segment is seven or eight times as long as its least width and brownish black with black pile of moderate length and with, near the apex, a long, lateral, very widely separated, distinct yellow spot on each side which is slightly narrowed anteriorly. The third segment has a long, acute, sublateral triangle, its base resting on the base of the segment, its medial surface connected in the middle with a pair of slender, widely separated, yellow vittae which slightly widen posteriorly and are slightly divergent near the apex; these vittae do not reach the posterior margin. The fourth segment is similar but the basal and sublateral triangles are smaller and disconnected from the submedial vittae; the submedial vittae almost reach the posterior margin. The fifth segment has four vittae, the outer pair obscure, more narrow, diffuse and a little darker, but continuous; the medial pair become gradually attenuate, wider, lighter and quite distinct, and do not reach to the posterior margin of the segment. The fourth and fifth segments are quite distinctly emarginate with prominent crease. *Legs*: anterior and middle legs wholly light ochraceous yellow; hind femur reddish brown becoming darker towards the apex, the apex is however narrowly brownish yellow, the femoral pile black and nearly appressed. The hind tibiae are black, the extreme apex and base yellowish, the pile black. The hind tarsi are entirely pale yellow with yellowish white pile. *Wings*: brown in the middle and in the costal and throughout the subcostal cell in which there is a quite yellowish tinge, the yellowish tinge is a little more pronounced on the basal half of the submarginal cell; the second basal cell and the basal half of the discal cell and the area immediately behind it is even more lightly yellowish brown resulting in a yellowish brown streak down the wing; the apical third of the wing, the posterior margin, nearly all of the discal cell, all of the anal

and axillary cells and the wide alula are brown or a light sepia color without yellowish tint.

Holotype: a male, Nova Teutonia, Brazil; collector Fritz Plaumann. In the collection of Dr. C. L. Fluke. There is a paratype male with the same data in the collection of the author.

Baccha arabella, n. sp.

A reddish brown fly with yellow face and front and ochraceous yellow markings upon the abdomen. Related to *vierecki* Curran but with different pattern. Length 9 mm.

Female. — *Head*: the vertex is black, rather thickly covered behind the ocelli with light brownish yellow pollen similar in color to that upon the occiput. The vertex is rather flat, the sparse black pile situated in two or three rows; the front is light yellow with a slender brown line in the middle over the central part of the front; the preantennal callus is yellow with a small brown spot, face and cheeks pale yellow with only a few long, slender, black hairs above with a little whitish pubescence in the middle and upon the extreme eye margin. The short antennae are wholly light orange, the arista black. The frontal pile is black. The posterior eye margin in profile are very shallowly but conspicuously and widely concave; very little of the occiput shows either above or below but a slightly wider portion shows in the middle; the eye margin is not indented; the occipital pile is reddish yellow with two rows upon the middle portion and a single row above where the pile becomes brownish black. *Thorax*: mesonotum brassy black, the lateral margins, humeri, post calli and the scutellum and the entire anterior half of the pleura including the anterior half of the pteropleura are light reddish or brownish yellow. The lower part of the sternopleura is light brownish red; squamae and the halteres dark brown in an oblique view. The disc of the scutellum appears more brownish; its discal pile is limited to a few slender brown hairs; there are six or seven fine hairs on the extreme margin but there is no ventral fringe. The disc of mesonotum has a pair of reddish yellow pollinose vittae which are rather wide and widely separated; the underlying ground color is also somewhat reddish. *Abdomen*: first segment brownish yellow with yellow pile laterally; the posterior margin is diffusely light reddish brown; the second segment is shining reddish brown with a pair of widely separated, slender, steeply oblique, ochraceous spots situated close to but just beyond the middle of

the segment; the ends of the spots are attenuate or acute. The third segment is reddish brown becoming a little darker posteriorly, shining, with a pair of large, widely separated, ochraceous vittae on the basal half of the segment reaching the base; each vitta is obliquely and triangularly produced laterally from the posterior half of the lateral part of the vittae; posteriorly these roughly subtriangular spots are indented in the middle. The fourth segment has a pair of widely separated, complete, yellowish vittae; also, but connected at the base, there is a pair of short, oblique stripes that curl around the side from the abdomen and do not quite reach the margin. The margins of this segment are somewhat curled over but apparently normal; the basal corners of this segment are brownish black. Fifth segment with a pair of equally wide yellow vittae which appear on continuations of those from the preceding segment. On the base of the fifth segment in the corners there is a small, obscure, disconnected reddish spot. Sixth segment with a pair of submedial reddish vittae. *Legs*: first four legs wholly yellow. The hind femora are brownish yellow with a distinct, post medial, sepia brown annulus and a less distinct submedial one. The hind tibiae are brownish yellow and obscurely pale brown in the middle. The pile of these femora is reddish yellow, of their tibiae chiefly sepia. The hind tarsi are rather light brownish yellow; except for a few brown hairs at the base of the basitarsi their pile is reddish golden. *Wings*: rather deeply tinged with light yellowish brown; the anterior margin is darker beginning with the anterior border of the submarginal cell and the whole apex of this cell; the pterostigma is a little darker brown, the costal cell yellowish brown, the alulae slender and continuous along the base of the wing.

Holotype: a female, La Suiza, Costa Rica, Pablo Schild. In the collection of Dr. A. L. Melander.

Baccha bella, n. sp.

A species, related to *bigoti* Austen but with different wing pattern and proportions of abdominal segments. Length 11 mm.

Female. — *Head*: vertex polished black with a few black hairs. The front is shining black with slight purplish to bluish reflections, especially laterally and narrowly along the eye margins beneath the greyish white pollen of the eye, and also especially upon a transverse crease which runs across the front close to the anterior margin leaving the precallus area somewhat protuberant.

The callus is narrow and reddish brown. The face is nearly straight in profile but retreating and without tubercle; it is faintly shining bluish black, transversely microstriate in the middle, the sides rather thickly yellowish white pubescent, the abundant pile similarly colored. The fine long frontal pile is black. The first segment of the antennae is dark brown, the second more reddish brown as is also the base and ventral part of the third segment. The third segment is widely brownish black above, the arista is black except at the light brown base. The occiput in profile is very little developed; it is entirely covered on the upper two-thirds by the eyes, its pollen yellowish grey, its pile situated in a single row but completely denuded in the specimen. *Thorax*: mesonotum shining black with quite faint brassy reflections; the posterior part of the notopleura is bluish and has sparse greyish white pollen; the post calli and the humeri are dark reddish sepia; the mesonotal pile is abundant, yellowish white but rather short; there is no anterior collar of pile. The scutellum is polished, reddish sepia, almost black; its abundant surface pile is white and a little longer than that on the mesonotum; the ventral fringe is composed of twelve to fourteen pairs of long, fine yellowish white hairs; squamae and fringe white, halteres sepia. The pleura are metallic black, a little brassy in the middle and with a very dark reddish brown stripe down the middle excluding the whole pteropleura; this stripe is yellowish white pollinose with similarly colored pile. *Abdomen*: first segment polished reddish sepia with metallic reflections with abundant, quite long pale yellow pile on the sides; the second segment is entirely light brownish red and shining without dorsal darker vittae. It is six times as long as its least width and only a little wider apically than in the middle. The base of the third segment is even lighter brownish red but quickly and diffusely shaded into dark red and then into black, and the pale basal area has a faint indication of a dividing line; much the greater part of the segment is blackish and in an oblique posterior view the black definitely consists of a pair of large, narrowly separated, opaque triangles, which are margined everywhere with shining color. The fourth segment is wholly black, also with definite, large, opaque black triangles but their margins slightly more obscure than on the third segment; fifth and sixth segments wholly shining black. *Legs*: anterior and middle femora light reddish brown becoming almost yellow at the apex. The anterior tibiae and the first and last segments of the tarsi are brownish yellow with a small diffuse median brown spot in the

middle of the tibiae and the intervening tarsal segments dark brown. The middle tibiae are similar to the anterior pair, the small brownish spot lies a little beyond the middle; their tarsi are wholly yellow. Hind femora light reddish brown, the apices narrowly yellowish; the femora are a little thickened subapically and the pile is reddish sepia; their tibiae are dark sepia brown, diffusely yellowish at the extreme base; the tibial pile is brownish black; the hind basitarsi are somewhat thickened, pale reddish brown at the extreme base where the pile is brown, all the remainder of these tarsi are pale whitish yellow with similarly colored pile. *Wings*: pale brownish hyaline, the costal cell, the basal half of subcostal cell and a diffuse spot in the middle of the wing including the cross veins, yellowish brown; pterostigma more reddish brown and the apex of the wing with a sepia brown spot which covers the end of the marginal cell almost as far back as the end of the pterostigma.

Holotype: a female, La Suiza, Costa Rica, August 29; Pablo Schild. In the collection of Dr. A. L. Melander.

Baccha boabdilla, n. sp.

A very slender, petiolate species related to *bigoti* Austen but much blacker than any of the remainder of this group and with distinctive pattern. Length 9 mm.

Male. — *Head*: the vertex is polished black with several rows of abundant, rather long black hairs, there is a very faint bluish reflection behind the vertex. The front is shining bluish black, slightly protuberant below the middle with a rough punctate spot in front of the narrow black callus; the frontal pile is quite thick and long and black, becoming shorter anteriorly; the frontal margin is narrowly greyish white pollinose; the face is metallic black with slight greenish reflections, the face becoming much narrower below than across the antennae, the sides thickly whitish pubescent, with thick white pile; there is no tubercle and the straight profile is only a little retreating. The third antennal segment is black, the first two segments almost black, the arista black. In profile the occiput is narrowly visible from above, more widely visible from below but not indented laterally; the pile in the middle consists of two rows of white non-scalose pile and above it is blackish. *Thorax*: mesonotum shining black, the postcalli and the humeri almost black; posterior part of the notopleura with a little sparse greyish white pollen; the mesonotal pile is unusually

thick but fine and rather long and black including that in front of the scutellum. The scutellum is shining black, the pile on its disc black along the base and sides, whitish posteriorly and with a ventral fringe consisting of about fourteen pairs of very long and fine whitish hairs. On the mesonotum there is a tuft of white hair behind and mesad to the notopleura but there is no collar of pile. The pleura are black, faintly dusted with whitish pollen, with thick, long, white pile except on the pteropleura where it is black; squamae white, the halteres with brownish white stalk and knob, the base of the knob blackish. *Abdomen:* very slender and petiolate and everywhere black; the apex of the second segment is distinctly opaque black and this apical annulus is produced forward in the midline. The second segment is fifteen times as long as its least width; its apical width is twice its least width, and the basal width is three times the least width. The posterior half or more of the third segment is distinctly opaque black, not divided into triangles, the remainder of the abdomen is polished black. The pile along the sides of the first segment is black anteriorly, white behind and rather long; the pile along the sides of the second segment is long, erect and fine, black above and white below; on the sides of the third segment it is white on the basal half, black posteriorly and almost erect posteriorly; there is erect white pile on the basal third of the fourth segment. *Legs:* anterior femora sepia, becoming yellowish at the apex; their tibiae are pale brownish yellow with narrow, post medial, sepia bands. The anterior tarsi are light yellow on the first two segments, dark brown on the remainder; middle legs missing. The hind femora and their tibiae, except narrowly at the base, are black and black pilose, all of their pile black except for whitish hairs at the base of the tibiae. The hind basitarsi are a little thickened, black and black pilose on the basal half; remaining segments brown. *Wings:* quite hyaline except for a blackish sepia pattern which includes the costal, subcostal and a rather sharp large central triangle reaching as far back as the cubital vein and which includes an isolated but moderately large and rather sharply delimited, oblique, oval, apical spot at the end of the wing; this apical wing spot fills the end of the marginal and submarginal cells; the alulae is quite widely developed.

Holotype: a male, Alto Parana, Hohenau, May 38, South America; F. Schade collector. In the collection of Dr. A. L. Melander.

Baccha fragmentaria, n. sp.

A small sepia brown species with ochraceous markings. Related to *papilio* Hull but more slender and with a different pattern. Length 7 mm.

Male. — *Head*: vertex brassy black, its black pile in a single row, the front ochraceous yellow but widely brown pollinose in the middle when viewed obliquely, leaving the eye margins alone yellow. There is a narrow, semicircular, polished brown band encircling the preantennal callus; the callus is yellow brown with a dark brown spot in the middle; the face and cheeks are yellow, the former tuberculate; the frontal pile is abundant and long and together with that of the face black. Posterior margin of the eyes deeply indented in the middle, the occiput yellowish pollinose with antennae short, first segment and basal half of second orange, remainder reddish; arista dark brown. Long, fine, yellow, non-scalose pile. *Thorax*: mesonotum strongly brassy in reflection, becoming almost coppery sublaterally; the lateral margin is brownish yellow and the postcalli and the humeri are yellow. The scutellum is brownish yellow with a few, minute, short, blackish hairs on the disc and apparently without ventral fringe. The pleura are yellow on the propleura, upper sternopleura anterior pteropleura and all of the mesopleura except the anterior margin; the remainder is metallic blackish; the yellow areas are non-pollinose and seem to be without pile, except for two or three slender hairs long and fine upon the upper sternopleura; mesopleural pile sparse, fine, short, erect and black. Squamae and halteres sepia brown. *Abdomen*: narrowly oval and spatulate and wide, shaped much as in *cultrata* Austen, the sides of the first segment are diffusely light yellow with moderately long, black pile; the middle of the segment is sepia brown. The second segment is sepia, shining, with a complete though rather narrow, slightly arcuate, yellow band, its posterior margin lying at the posterior third of the segment and the lateral ends of this band not quite reaching to the extreme edge of the segment; in the midline the band is produced into a minute point on both margins; the yellow band is obscurely margined with opaque sepia on each side. The third segment is sepia brown with a pair of large, obtuse triangles in the middle of the segment separated from one another and which do not quite reach the lateral margin; the base of the segment has a pair of minute but elongate, slender, obtuse triangles narrowly separated in the middle. Fourth segment with a pair of widely separated yellow vittae divergent posteriorly,

not reaching the posterior margin but dilated at the immediate base on either side and there confluent with a narrow, linear, basal band. Sublaterally there is near the base of the segment a small, oblique, curved, subtriangular spot nearly or quite touching the outer edge of the elongate vittae. Fifth segment with prominent submedial vittae, widely separated, connected to a narrow basal fascia which is produced posteriorly near the lateral corners of the segment into a short, acute, posterior prolongation of the ochraceous yellow color. The color of all of the abdominal spots are light brownish ochraceous yellow; abdominal pile black. *Legs*: anterior and middle legs entirely pale brownish orange; the anterior coxae are light yellow. Posterior coxae and trochanters yellow, their femora sepia brown; their apices narrowly light brown; hind tibiae wholly dark sepia, almost black, the pile of the hind femora and tibiae nearly black. The hind basitarsi are dark orange brown, slightly darker at the base and with sepia pile above and reddish golden pile below; the remaining segments of the hind tarsi are orange brown; the upper pile of the second segment is brown, of the remainder golden. *Wings*: entirely sepia brown, the pterostigma darker.

Holotype: a male, Tapachula Mountains, Mexico, Aug. 17-19, 1943, F. M. Snyder. In the Fluke collection.

Baccha cyclops, n. sp.

A large slender species related to *aster* Curran but with more blackish wings and different pattern. Length 12.5 mm.

Male. — *Head*: vertex black with faint bluish cast and a single row of long black hairs. The upper occiput is dark steel blue, the front is black, moderately shining with the sides rather widely and sharply yellow and with the upper half of the front brownish red pollinose in an oblique light; the frontal pile is abundant on the upper half and sides and long, fine, black and erect. The face is light yellow with a rather sharp black stripe in the middle ending immediately below the tubercle. The tubercle is faintly brassy, the upper part of the stripe faintly bluish, the sides of the face silvery pubescent and the facial pile silvery except immediately opposite the antennae. The antenna and arista are black, the cheeks brownish black. The sides of the occiput are silvery pubescent, rather deeply indented in the middle with three rows of fine yellowish white hairs; the anterior two rows are a little scale-like when viewed from above. *Thorax*: mesonotum

shining black with an extremely faint cupreous or bronze reflection and faintly greenish on the notopleura and above the wing. There are no easily discerned stripes but viewed posteriorly there are two quite wide, widely separated, faint reddish brown vittae of pollen upon the anterior half of the mesonotum. The pleura are shining black, slightly bluish, with a sharp, prominent, yellow stripe on the posterior half of the mesopleura and similar colored roundish spot on the upper part of the sternopleura. The mesonotal pile is erect, moderately long and mostly blackish but along the anterior margin there is a band of slightly longer yellowish white hairs; this band cannot be described as a differentiated collar of pile. The notopleural pile is yellowish and all pleural pile yellowish. Squamae pale yellow, its border and the halteres light orange brown. The scutellum is shining black with a very faint brassy reflection and a subbasal band of brownish yellow which is attenuate laterally; the discal pile is sparse, long and black, the ventral fringe consists of about eleven pairs of long yellow hairs. *Abdomen*: quite slender throughout, the fourth segment only about twice as wide as the second, the second segment nine times as long as its least width. The first segment is steel bluish as well as the base and sides of the second, the second is black dorsally with a large, medial stripe of opaque black beginning a little way back from the end of the segment and continuing forward almost to the basal margin. A little past the middle of the second segment there is a distinct, subtriangular, yellow spot laterally on either side so placed that scarcely any of it shows from above. The second and third segments are quite cylindrical and even the sides of the fourth segment are strongly curled. The third segment is black, shining, with a large, opaque, medial black stripe and with a larger, semicircular, light yellow spot on either side which is located a little before the middle of the segment; like the spot upon the second segment very little of it shows from above. Fourth segment with coloration similar to the third, the yellow spot much larger but still chiefly lateral in position and lying almost on the base of the segment itself; in shape it is nearly rectangular but it is obliquely produced on the posterior edge down the lateral margin of the segment. Fifth segment shining black with bluish reflections and a round, basal, medial, opaque black spot. *Legs*: anterior femora brownish yellow, a little more brownish apically, each tibia yellow with faint, narrow, brown annulus; the first two tarsal segments are yellow, the remaining three brown; the middle femora light brown but yellow brown at base and apex,

their tibiae yellow but becoming very faintly brown near the apex, their first two tarsal segments yellow and the last three brown. The hind femora are sepia brown, the extreme base yellowish and their tibiae sharply pale yellow on the basal third, the remainder of the tibiae and the basal two-thirds of the basitarsi blackish brown; the remainder of tarsi, except the pale brown last segment, are pale yellow with pale yellow pile. The black areas of the hind legs have black pile. *Wings*: quite strongly tinged with blackish brown, slightly and faintly darker in the marginal and submarginal cells, the costal cell is darker still and the pterostigma sepia.

Holotype: a male, Muzo, Colombia, J. Bequaert collector.

Baccha diana, n. sp.

A spatulate species, the abdomen narrowly oval with a pattern related to *cultrata* Austen. Wings deeply tinged with brown. Length 11 mm.

Male. — *Head*: vertex black and dully shining, the occiput with golden pollen and a single row of long, fine golden hairs which is increased to three rows in the middle of the posterior eye margin; at this point the eye is deeply indented. The front is brownish yellow, and but little shining, with erect black pile; there is a large, brown, polished, lunate spot in front of the antennae in the center of which is a round, black spot. The face and cheeks are yellow with sparse, blackish pile above the tubercle and yellowish white pile below it. The antennae are short, pale brownish orange, the third segment dark brown on the upper fourth, the arista yellowish brown. *Thorax*: the mesonotum is widely blackish over the middle, the vittate pattern obscured by grease. The lateral margins of the mesonotum, the humeri and the post calli and the scutellum are brownish yellow; the whole of the mesopleura the anterior margin of the pteropleura and the upper margin of the sternopleura are also brownish yellow; mesonotal and pleural pile yellow and erect. There is no differentiated collar of pile on the anterior margin of the mesonotum. The ventral scutellar fringe if present is not preserved. The squamae are brown with brown fringe, the halteres yellowish brown. *Abdomen*: very narrowly oval, the sides of the second and third segments are almost parallel; the third segment is fully as wide as the widest part of the thorax; the apical width of the second segment is approximately one and one-half times as wide as the

length of this segment. Third segment with parallel sides and perhaps a little more than one and one-half times as wide as long. The remaining segments taper gently; the fifth segment is wide, the entire abdomen rather flat. On the second segment there is a complete, wide, very slightly arched cross band which lies just a little beyond the middle. On the third segment there is a similar, wider cross band, lying in the middle of the segment and the central portion of this cross band is slightly widened anteriorly; it does not reach the lateral margins. Fourth segment with a pair of large, short, oval spots lying in the middle of the segment separated from one another and the anterolateral corners of these spots are produced outward and slightly curved backward in the form of an armlike process; these processes do not reach the lateral margin. The fifth segment has a single pair of rather wide vittae which are widest basally, are well separated in the middle and are slightly tapered posteriorly and reach the posterior margin of the segment. The spots and fascia of the abdomen are deep brownish yellow, the dark background is sepia. The pile of the abdomen is black except for a few yellow hairs anteriorly on the yellowish first segment. Most of the pile of the first segment is black; the sides of the fourth and fifth segments are emarginate. *Legs*: first and second pairs of legs entirely clear yellow, the hind femora brownish yellow and very faintly brownish at the immediate base of the basitarsi brown pile, the remaining pile yellow. *Wings*: rather strongly and evenly tinged with brown throughout, the brown of the costal and marginal cell scarcely darker than the posterior margin, the pterostigma however, is a little darker; the third vein is almost straight.

Holotype: a male, Georgetown, British Guiana.

Baccha hyacinthia, n. sp.

A slender petiolate species characterized by the four violet vittae upon the mesonotum. Perhaps distantly related to *stenogaster* Williston. Length 9 mm.

Female. — *Head*: the vertex and front are metallic black, the black vertical pile in one row, the ocelli set off by a crease. The front is transversely striate, narrowly greyish white pubescent along the eye margins; the lower part of the frontal eye margins are brownish yellow in ground color. The face and cheeks are light yellow, their sides quite pubescent and the pile whitish. The pile of the front is sparse, short and white. The antennal callus is

yellowish brown with a small black spot in the middle. The first two segments of the antennae are brownish yellow; the third is light reddish below but widely brownish black above; the arista blackish. The posterior eye margin is rather deeply but broadly indented in the middle and beginning at the upper part of the indentation and continuing below the occiput it is covered with two to three rows of broadly scalose, pale, yellowish silvery pile; the upper third of the occiput is quite visible laterally as the eye margins are not produced backward to cover it. *Thorax*: upon the mesonotum the humeri and a notopleural stripe, the posterior half of the mesopleura, the anterior portion of the pteropleura and the upper part of the sternopleura are pale yellow; the remainder of the pteropleura and the anterior parts of the metapleura and hypopleura are more of a brownish yellow; the anterior end of the postcalli is brownish yellow. The mesonotum has four prominent, violet stripes, the intervening areas metallic black and perhaps faintly bluish; all four stripes are attenuate towards the anterior margin. The scutellum is yellowish brown but strongly violaceous in reflection especially upon the basal part; the squamae are extremely short and light brown with short pale brown fringe which is sparse and inconspicuous; halteres yellowish brown with blackish knob. The mesonotal pile is fine, sparse, erect and blackish; there is no collar of pile. *Abdomen*: quite slender, the sides of the first segment yellow with a few white hairs, the remainder of the first segment and the second segment black with faint violaceous tinge; there is an inconspicuous, yellowish brown triangle on the sides of the base of the second segment and a similarly colored, inconspicuous, small, quadrate spot on the sides of the second segment beyond the middle. The third segment is black with inconspicuous, small, lateral, dark yellowish brown spot; fifth and sixth segments black; abdominal pile black. *Legs*: the first four legs are yellowish, their tarsi pale brownish orange; the hind femora are pale brownish yellow with distinct, wide, post medial, sepia brown bands; the hind tibiae are brown, the extreme apex and a rather wide, medial band pale brownish yellow. The hind tarsi are dark brown, their dorsal pile of the same color. *Wings* hyaline, the pterostigma dark brown; a minute brown spot lies above the node of the vena spuria, but is confined to the first basal cell. The alula is narrow but runs the full length of the wing base.

Holotype: a female, and one paratype female, Soledad, Cuba.

Sobre um Novo Gênero Neotrópico de Vesciinae, com Considerações Sobre a Subfamília (Reduviidae, Hemiptera).

Por Petr Wygodzinsky, Instituto de Ecologia e Experimentação Agrícola, Rio de Janeiro

(Com 20 figuras no texto)

A presença ou ausência de ocelos em exemplares macrópteros de *Reduviidae* foi sempre considerada como excelente caráter adicional para a definição de subfamílias neste grupo. Recentemente tivemos a oportunidade (Wygodzinsky, 1946) de demonstrar que este caráter perde o seu valor na subfamília *Chryxinae*. A subfamília era até então formada por um único gênero, *Chryxus*, cujas duas espécies, ambas macrópteras, não possuem ocelos. Descrevemos então o gênero *Lentia*, igualmente macróptero, onde se encontram dois ocelos perfeitamente distintos; do outro lado, todos os demais caracteres indicam claramente as estreitas afinidades de *Chryxus* e *Lentia*, que têm que ser reunidos numa só subfamília.

Temos agora a oportunidade de acrescentar mais um caso em condições idênticas. A subfamília *Vesciinae*, até agora constituída de quatro gêneros, era caracterizada, além de outros pontos, pela ausência completa dos ocelos nas formas macrópteras e, naturalmente, nas braquípteras. Descreveremos adiante um quinto gênero, sem dúvida muito afim dos já descritos, mas que possui ocelos distintos, na sua forma macróptera, a única conhecida.

Considerando as condições nas subfamílias *Chryxinae* e *Vesciinae*, somos obrigados a concluir que a presença ou ausência de ocelos em exemplares macrópteros de *Reduviidae* já não pode ser considerado como caráter distintivo para a definição das subfamílias.

Megavescia, n. g.

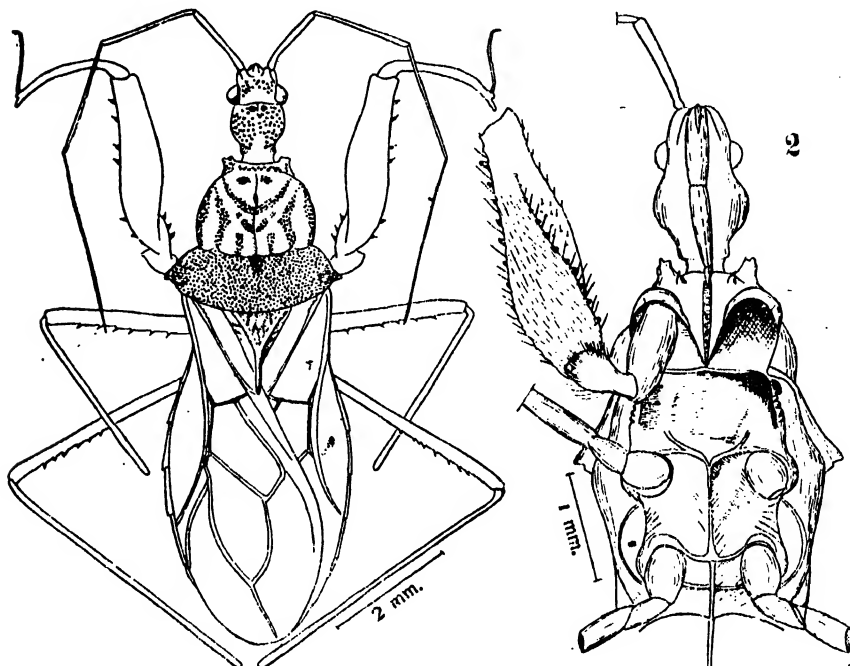
Superfície do corpo pouco brilhante, com cerdas isoladas e com forte granulação em várias áreas.

Parte antecular da cabeça mais curta que a postocular. Olhos pequenos, não atingindo a face ventral da cabeça. Ocelos distintos. Espinho entre a base das antenas ausente. 1º artigo das antenas mais curto do que a cabeça, porém mais longo que a metade do 2º artigo. 1º e 2º artigo do rostro de comprimento subigual, o 3º muito curto.

Lobo anterior do pronoto mais longo que o posterior, fortemente convexo, a sutura mediana longitudinal distinta, o seu

disco com a granulação arrumada em faixas regulares. Lobo posterior uniformemente coberto de granulação, os ângulos humerais salientes. Escutelo simples, o seu processo apical relativamente curto, deitado.

Coxa anterior forte, bastante alongada. Trocanter anterior sem espinhos, porém com pêlos finos extremamente numerosos.

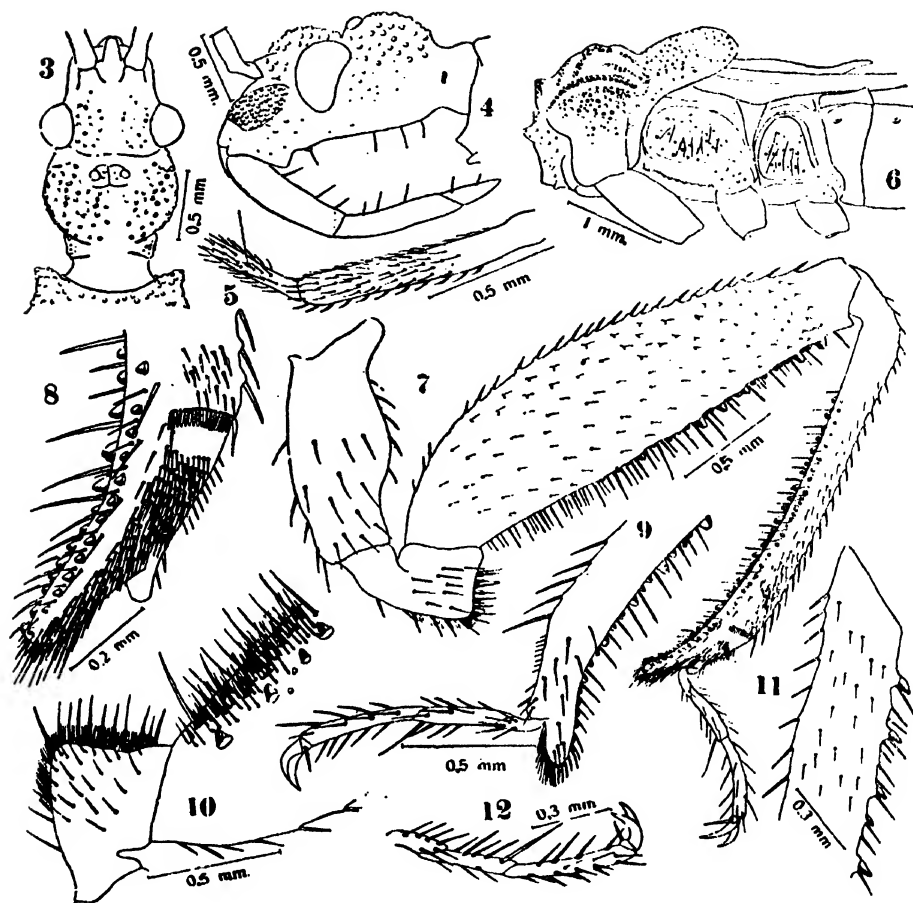


Megavescia cazieri n. g. n. sp., macho. Fig. 1. Aspecto geral. — Fig. 2. Cabeça e tórax, aspecto ventral. — Wygodzinsky del.

Fêmur anterior muito grosso, ventralmente achatado na sua base, sua face interna ligeiramente excavada basalmente, a face ventral em toda a sua extensão com duas fileiras longitudinais de espinhos curtos e fortes, maiores e menores. Tíbia anterior curva apicalmente, a sua face ventral em todo o seu comprimento com duas fileiras de espinhos curtos idênticos aos do fêmur; pente apical da tíbia anterior muito afastado da ponta; processo distal bastante alongado. Fêmur mediano e posterior sem macroquetas. Tarsos alongados e delicados, de três artículos.

Hipopígio do macho com micro e macroquetas. Clásperes bem desenvolvidos. Falosoma simples, sem processos laterais basais.

Espécie tipo: *Megavescia cazieri* n. sp.



Megavescia cazieri n. g. n. sp., macho. Fig. 3. Cabeça, aspecto dorsal. — Fig. 4. Cabeça, aspecto lateral. — Fig. 5. 19 e base do 20º articulo da antena. — Fig. 6. Tórax, aspecto lateral. — Fig. 7. Perna anterior, face interna. — Fig. 8. Apice da tibia anterior, face interna. — Fig. 9. Apice da tibia anterior com tarso, face externa. — Fig. 10. Trocanter e base do fêmur anterior, face externa. — Fig. 11. Base do fêmur mediano. — Fig. 12. Tarso mediano. — Wygodzinsky del.

O novo gênero é claramente intermediário entre *Pessoaia* Costa Lima de um, e *Vescia* Stal e *Chopardita* Villiers de outro lado. Assemelha-se a *Pessoaia* pelo seu aspecto geral, seu corpo pouco brilhante, sua granulação (porém ainda mais forte de que em *Pessoaia*), a ausência do espinho entre as bases das antenas, a presença de clásperes no macho, e a forma do falosoma. *Megavescia* aproxima-se de *Vescia* pela região anteocular da cabeça muito curta, a relação do comprimento dos artículos da antena e do rostro, pela ausência de processos e presença de pequenos espinhos no fêmur anterior, e pela ausência de macroquetas nos fêmures e tíbias medianas e posteriores. Como caracteres peculia-

res de *Megavescia* mencionamos apenas a granulação muito característica das diversas regiões do corpo e principalmente a presença dos ocelos.

Megavescia cazieri, n. sp.

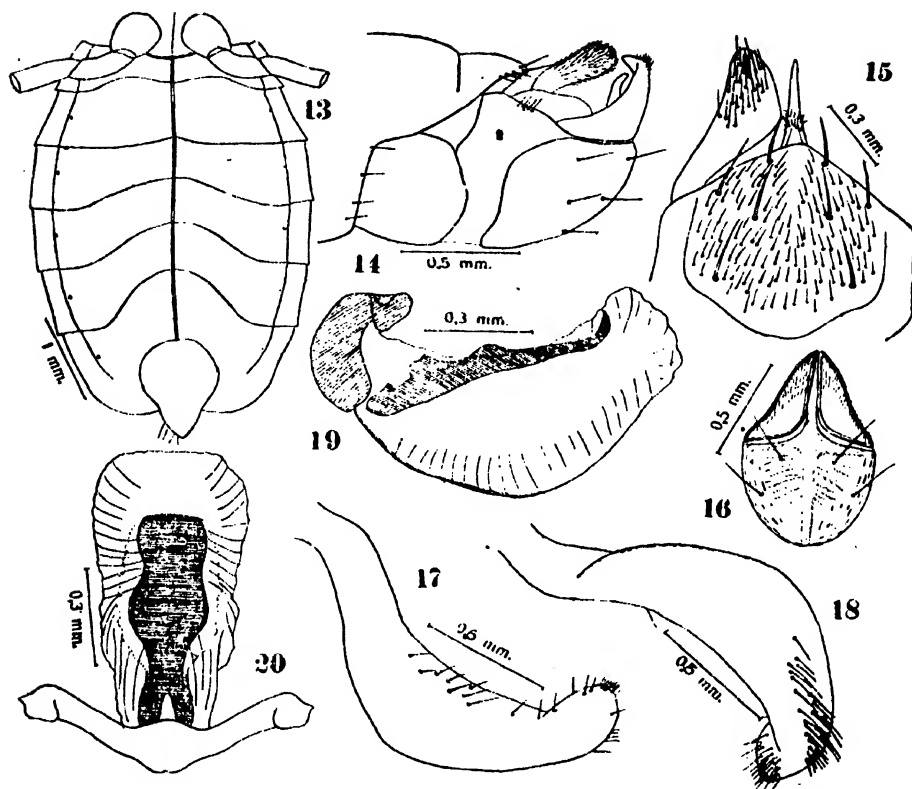
Macho. — Comprimento total (até o ápice dos hemélitros) 9.2 mm.; largura máxima do tórax 2.7, do abdômen 3.0 mm. Cor geral picea escura, antenas, rostró, pernas, clavo, parte externa do cório e face ventral do corpo de cor castanho-avermelhada não muito escura. Tegumento do corpo e dos apêndices ligeiramente brilhante, hemélitros foscos. Aspecto geral conforme fig. 1.

Cabeça conforme figs. 3 e 4. Granulação de distribuição irregular, o mais forte nas genae. Incisura transversal entre olhos e ocelos muito profunda. Olhos pequenos, a sua largura, no aspecto dorsal, menor do que a metade do espaço interocular (1: 2.5). Cabeça fortemente inchada atrás dos olhos, os seus lados fortemente convergentes posteriormente. Face ventral da cabeça ligeiramente convexa, com vários pares de cerdas fortes, as cerdas apicais da face ventral inseridas em 11 tubérculos distintos. Rostro conforme fig. 4, bastante delicado, a sua face dorsal com vários pares de cerdas fortes. Antenas delicadas, o 1º artículo mais curto que a cabeça, porém mais longo que a região antecular, ultrapassando consideravelmente o ápice da cabeça; comprimento do 1º artículo 1.1 mm., comprimento relativo dos artículos = 1 : 1.45 : 1.75 : 2.45. 1º e 2º artículo com cerdas muito curtas, o 3º e 4º com cerdas mais longas, porém bem esparsas.

Tórax e escutelo conforme descrição genérica, e figs. 1 e 6. Pernas anteriores conforme descrição genérica e figs. 7-10. Pernas medianas e posteriores (fig. 1) simples, delicadas; fêmures medianos ventralmente com cerca de 8 processos dentiformes maiores (fig. 11). Tarso mediano conforme fig. 12.

Hemélitros e suas nervuras conforme fig. 1.

Abdômen relativamente largo, porém lateralmente não coberto totalmente pelos hemélitros. Margem lateral do conexivo ligeiramente granulada; ângulos pósterolaterais dos segmentos do conexivo ligeiramente salientes. Aspecto ventral do abdômen conforme fig. 13; o tegumento sem granulação. Quilha mediana longitudinal do 2º até o 7º segmento. Último segmento prolongado dorsalmente numa saliência subtriangular, que possui algumas cerdas fortes e longas. Hipopégio conforme figs. 14-16, com uma dis-



Megavescia cazieri n. g. n. sp., macho. Fig. 13. Abdômen, face central, sem o hipopiglio. — Fig. 14. Apice do abdômen, aspecto lateral. — Fig. 15. Hipopiglio, aspecto ventral, com cerdas. — Fig. 16. Hipopiglio, aspecto distal. — Fig. 17. Cláasper, face externa. — Fig. 18. Cláasper, face interna. — Fig. 19. Aedeagus, vista lateral. — Fig. 20. Aedeagus, aspecto dorsal. — Wygodzinsky del.

tinta carena mediana longitudinal e um longo processo apical que é dirigido para cima; numerosas microquetas e algumas macroquetas presentes. Clásperes alargados medialmente, mais estreitos na base e no ápice; as suas cerdas conforme figs. 17 e 18. Aedeagus conforme figs. 19 e 20; falosoma simples, a sua esclerosação dorsal de feitiço característico.

Localidade: British Guiana (1 macho, holótipo, American Museum of Natural History).

O nome específico é dado em homenagem ao Dr. Mont A. Cazier, do Museu de New York, a quem devemos muito material interessante para estudo.

Summary.

The author describes *Megavescia cazieri* n. g. n. sp. from British Guiana, which is characterized by the presence of ocelli. As the subfamily

Chryxinae has also been proved to contain macropterous genera with and without ocelli, this character is no more considered as decisive for the definition of subfamilies in *Reduviidae*.

Bibliografia.

- Villiers, A., 1944, Note sur deux Réduvidés africano-brésiliens constituant une nouvelle sous-famille. — Bull. Soc. Ent. Fr., 1944: 79-83, 9 fgs.
- Wygodzinsky, P., 1943, Contribuição ao conhecimento da subfamília Vesciinae (Hemiptera, Reduviidae). — Rev. Brasil. Biol., 3 (2): 203-223, 103 fgs.
- Wygodzinsky, P., 1946, Sobre um novo gênero-e uma nova espécie de *Chryxinae* e considerações sobre a subfamília (Reduviidae, Hemiptera). — Rev. Brasil. Biol., 6 (2): 173-180, 12 fgs.

Nouvelles Espèces de Pompilidae du Brésil (Hymenoptera).

Par Roger Arlé, Museu Nacional, Rio de Janeiro.

(Com 25 figuras)

Initiant des recherches biologiques et taxonomiques sur les Pompilides de l'Amérique du Sud, je donne dans cette note la description de six espèces nouvelles particulièrement intéressantes à divers points de vue. Ces espèces sont les suivantes:

Abernessia irmgardae, n. gen. n. sp.

Tapiaporus bradleyi, n. gen. n. sp.

Rhabdaporus lopesi, n. sp.

Cosmiaporus minor, n. sp.

Batozonus pentodon, n. sp.

Ameragenia fallax, n. sp.

Je propose deux genres nouveaux: *Abernessia* (Ctenocerinae) et *Tapiaporus* (Pompilinae).

Plusieurs collègues et amis m'ont prêté de grands services dans la tâche de réunir du matériel d'étude, je citerai les Drs. Petr Wygodzinsky, Hugo Souza Lopes et Augusto Ruschi. Qu'ils trouvent ici le témoignage de toute ma gratitude.

Abernessia, n. gen.

Type: *Abernessia irmgardae*, n. sp.

Femelle. Dans la sous famille *Ctenocerinae*. Voisin de *Lepidocnemis* Haupt dont il diffère principalement par les tibias postérieurs non écaillés et par les ailes normales (fortement raccourcies chez *Lepidocnemis*).

Tête conformée comme chez *Lepidocnemis*. Vertex élevé, face et clypeus formant un plan ininterrompu, sans aucune suture. Clypeus plat, luisant. Fossettes antennaires profondes, beaucoup plus rapprochées entre elles que chez *Lepidocnemis* mais pourtant bien séparées. Scape des antennes aplati et courbé. Palpes maxillaires courts, ses articles 2 à 3 fois aussi longs que larges. Pronotum abruptement tronqué antérieurement puis formant un collar horizontal large, partie verticale lisse et brillante. Streptaulus profond. Dorsalement le pronotum montre une très légère impression linéaire médiane.

Tarses antérieurs 2-4 raccourcis. Tibias postérieurs non dentés mais montrant un léger soulèvement à la base des épines. Apicalmente quelques très courtes épines égales cachées dans les poils. Griffes dentées. Soies entre les griffes faibles.

Abdomen large. Deuxième sternite avec une profonde impression transversale.

Ailes normalement développées. Nervulation comme *Lepidocnemis*.

Abernessia irmgardae, n. sp. (Figures 1-5)

Femelle. Coloration générale du fond entièrement noire. Pattes et antennes noires sauf un peu de brun rougeâtre sur les articles médians des antennes et les deux derniers articles des tarsi I qui sont rougeâtres. Tout le corps et les pattes avec une pubescence d'un vert bleu, brillante. Ailes entièrement recouvertes d'une pubescence ferrugineuse uniforme et plus ou moins enfumées à la base mais non obscurcies apicalement. Toutes les nervures des ailes claires.

Tête très large, beaucoup plus large que le pronotum (relation 1,4). Face lisse, formant avec le clypeus une plaque continue dans laquelle s'enfoncent les fossettes antennaires. Clypeus très lisse, brillant, plat avec une légère ponctuation très éparse, son bord antérieur avec une large échancrure arrondie lui donnant un aspect bilobé.

Mesures de la tête: largeur max. avec les yeux 64, hauteur de l'extrémité antérieure du clypeus au vertex 59, espace entre les yeux à la base 39, au sommet 37, distance entre les ocelles postérieurs et le bord postérieur de la tête 19.

Antennes relativement courtes. Scape courbe et aplati. Les articles I-II-III-IV mesurent respectivement 20-5-16-15. Largeur maximum de l'article IV égale à 6. Longueur totale du thorax sans le collar 100, largeur max. au pronotum 44. Pronotum trans-

verse, ses bords latéraux convexes. Une très fine impression linéaire médiane parcourt environ deux tiers de la longueur du pronotum. Longueur du pronotum sans le collar 23, collar 7, largeur du pronotum 44. Propodeum régulièrement arrondi, sans stries.

Abdomen très grand relativement au thorax, aussi large que la tête. Impression du sternite II complète. Tergites V et VI couverts de soies raides, dressées. Sternites V et VI également. Sternite IV avec quelques soies. Longueur des soies 10. Quelques poils semblables sur la face antérieure des hanches I et quelques uns de chaque côté du vertex vers le bord supérieur des yeux. Propodeum imberbe.

Pattes courtes, longueur des tibias aux pattes postérieures 70.

Ailes beaucoup plus longues que l'abdomen. Ailes 200, abdomen 150. Pour la nervulation voir figure 1.

Longueur du corps 16 mms.

Aile antérieure 12 mms.

Localité: Campos do Jordão (E. de São Paulo), Abernessia. Altitude 1600 mts., III-1945. Irmgard Burchard col. (Holotype 1 femelle, collection de l'auteur).

Observations. — Je ne discuterai pas ici la position exacte de cette espèce remarquable qui s'apparente de très près au *Lepidocnemis antiquus* Haupt dont la provenance restait quelque peu douteuse. Il existe donc réellement en Amérique du Sud, un groupe (à l'heure actuelle *Lepidocnemis-Abernessia*) complètement isolé et qui se rapprocherait énormément de certains *Ctenocerinae* (Claveliinae) africains. En tout cas l'insecte que je viens de décrire conserve beaucoup de caractères d'un parfait *Cryptochilinae* et je ne peux absolument pas le rapprocher des *Psorthaspis* américains parmi les *Pompilinae*. La très curieuse et caractéristique conformation de la face décrite ici et qui se retrouve chez les *Ctenocerus* et certains *Psorthaspis*, se serait-elle développée indépendamment dans différents groupes de Pompilides? Je ne répondrai pas à cette question.

Tupiaporus, n. gen.

Type: *Tupiaporus bradleyi*, n. sp.

Femelle. Dans la sous famille *Pompilinae*. Voisin de *Rhabdaporus* Bradley dont il diffère par les griffes simplement dentées, le pronotum long, atténué antérieurement, la tête très petite pas plus large que le pronotum à sa partie postérieure et la mandibule angulée à son bord inférieur.

Tête du type *Aporus*. Fossettes antennaires faibles s'étendant obliquement en direction des yeux mais non verticalement de façon que toute la face est très légèrement convexe. Base des antennes située plus haut que la base des yeux. Côtés du pro-

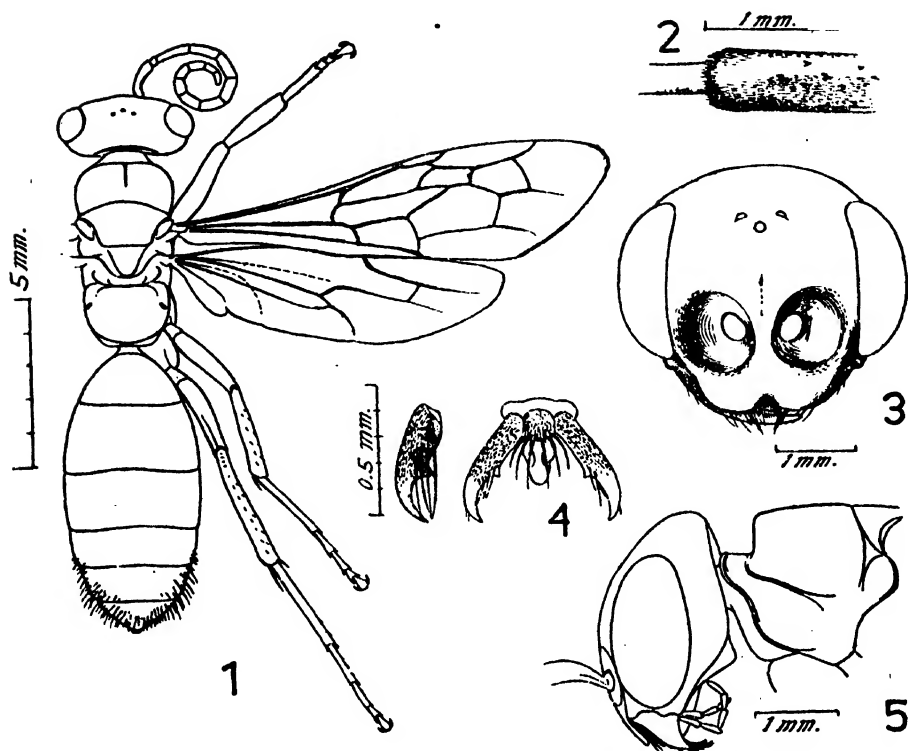


Fig. 1. *Abernestia limgardae* n. gen. n. sp.; aspect dorsal. — Fig. 2. Id.; extrémité du tibia III. — Fig. 3. Id.; tête de face. — Fig. 4. Id.; griffes. — Fig. 5. Id.; tête et pronotum de profil.

notum non parallèles mais légèrement convergents. Grandeur relative de la tête bien moindre que dans les genres voisins. Fémurs de la 1ère paire de pattes fortement dilatés. Abdomen non comprimé latéralement. Griffes du type *Euplaniceps*, semblables à toutes les pattes, présentant une dent aigue interne et sur leur face externe 4-5 soies longues atteignant l'extrémité. Coloration du type *Euplaniceps*. Dans l'aile les deux nervures récurrentes aboutissent dans la 2ème cellule cubitale.

Tupiaporus bradleyi, n. sp. (Figures 6-10)

Femelle. Fond entièrement noir y compris les pattes et les antennes. Tergites II et III chacun avec une paire de taches d'un blanc d'ivoire. Une tache d'un rouge orange occupant une partie du tergite V et le tergite VI presque totalement. A la partie antérieure du pronotum une belle tache circulaire de pubescence dorée. Une tache dorée également brillante occupant tout le

scutellum. Postscutellum, parties postéro-latérales du propodeum, méso et métapleures ainsi que toutes les hanches avec une pubescence d'un gris doré. Toutes les pattes, antennes, abdomen sur les sternites II et III et parties latérales des tergites correspondants, montrant sous une certaine orientation, une pubescence grise. Sur la tête et le pronotum la pubescence est d'un noir profond. Partie antérieure du propodeum d'un noir moins intense. Ailes antérieures fortement enfumées. Une tache blanche occupe le centre de la cellule médiane. Une bande de même couleur traverse l'aile au niveau de la base du stigma occupant la partie distale de la 1ère cellule cubitale et un tiers de la seconde, de là atteint le bord de l'aile. Cellule brachiale entièrement noire. La base de l'aile à la naissance des cellules submédianes et anales est transparente sur une courte distance. Ailes postérieures légèrement et irrégulièrement enfumées.

Face très peu convexe, mate, couverte de pubescence noire et de quelques poils dressés, courts. Une très fine fissure médiane à la partie inférieur du front; *area frontalis* formant avec le clypeus un angle supérieur à 90°. Clypeus plus ou moins plat convexe seulement à son bord antérieur; secteurs médians et latéraux du bord antérieur du clypeus à peu près droits et égaux entre eux; quelques poils au bord antérieur. Yeux atteignant le bord du vertex et la base des mandibules. Mesures de la tête: long. maximum avec les yeux 45, hauteur max. du bord antérieur du clypeus au vertex 44, espace entre les yeux au niveau des ocelles postérieurs 25, au niveau du clypeus 20, espace entre les ocelles postérieurs 7, entre les mêmes et le bord des yeux 6, clypeus 9-22. Les derniers articles des antennes plus fins que les médians, les articles I-II-III-IV mesurent respectivement 11-4-12-10, la largeur max. de l'article IV étant de 4. Scape très légèrement aplati. Mesures du thorax: longueur du pronotum sur la ligne médiane sans le collar 36, collar 5, largeur max. au bord postérieur 44, au niveau du centre de la tache de pubescence antérieure 36, long. du mésonotum 23, long. du scutellum 18, long. du propodeum 30, larg. du propodeum 41. Bord postérieur du pronotum formant une courbe peu accentuée et régulière, faces latérales très plates leur tubercle postérieur étant très peu saillant, la seule impression notable étant celle du streptaulus qui est bien marqué antérieurement mais sur une très courte distance. Dorsalement la surface du pronotum, du mésonotum et du scutellum porte quelques poils dressés, fins, guère plus longs que ceux de la face. Métapostnotum étroit mais non interrompu

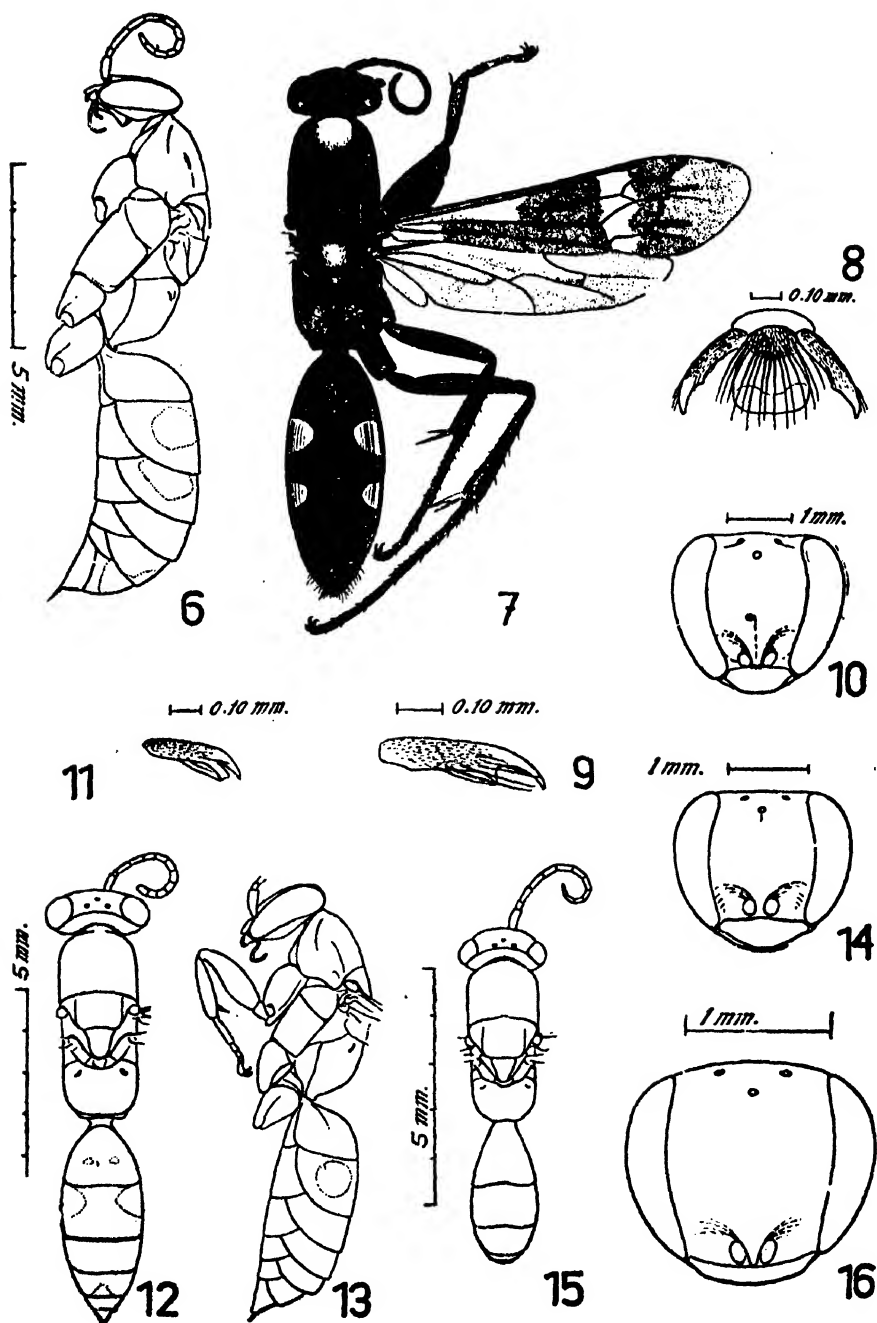


Fig. 6. *Tupiaporus bradleyi* nov. gen. n. sp.; profil. — Fig. 7. Id.; dorsal. — Fig. 8. Id.; tête de face. — Fig. 9. Id.; griffe. — Fig. 10. Id.; tête de face. — Fig. 11. Id.; griffe. — Fig. 12. Id.; dorsal. — Fig. 13. Id.; profil. — Fig. 14. Id.; tête de face. — Fig. 15. *Cosmiaporus minor* n. sp.; dorsal. — Fig. 16. Id.; tête de face.

au milieu. Propodeum nu. Largeur max. de l'abdomen (tergite II) 49. Extrémité abdominale avec de longs poils dressés et courbes, quelques poils semblables à l'extrémité des sternites II-III-IV et V. Aux tibias médians et postérieurs les éperons sont blancs, les postérieurs égalant la moitié des métatarses. Mesures des pattes: Patte I, fémur long. 44, larg. 21, tibia 37, métatarse 10, tarse II+III+IV 10, tarse V 10. Tibias de la 3ème paire de pattes 65. Mesures de l'aile: stigma long. 15, radiale long. 26, larg. 10, 2ème cubitale long. 20, larg. à l'extrémité 10.

Longueur du corps 15 mms.

Aile antérieure 10 mms.

Localité: Santa Teresa (E. do Espírito Santo), alt. 700 mts. XII-1946 (1 femelle holotype capturée par l'auteur). Collection de l'auteur.

Observations. — Cette espèce se place évidemment parmi les formes les plus différenciées de la tribu *Aporini*, marquant même à mon avis, le maximum connu de spécialisation dans la lignée qui a conservé la tête du type primitif *Aporus*. Je rappelle que dans cette tribu les espèces paraissent très localisés et que les formes les plus évoluées se trouvent précisément au Brésil.

C'est avec plaisir que je dédie ce bel insecte au grand hyménoptérologiste Prof. J. C. Bradley de qui j'ai reçu de précieux conseils.

Genus *Rhabdaporus* Bradley

Rhabdaporus lopesi, n. sp. (Figures 11-14)

Femelle. Fond noir. Pattes noires, tarses d'un brun rougeâtre foncé. Antennes rougeâtres, articles médians noirs en dessus. Deux très petites taches rougeâtres sur le tergite I, tergite II avec une paire de larges taches d'un blanc d'ivoire, tergite III entièrement noir, extrémité du tergite IV et tergites V et VI en entier d'un rouge ferrugineux. Pubescence noire à reflets bruns sur tout le pronotum, le mésonotum moins le bord postérieur, le scutellum moins le bord antérieur et la partie antérieure du propodeum. Sur les tergites abdominaux une fine pubescence rougeâtre. Une ligne de pubescence argentée occupe la partie postérieure du mésonotum et le bord antérieur du scutellum, deux taches de même couleur occupent les côtés de la partie postérieure du propodeum. Une fine pubescence grise couvre toutes les hanches, les méso et métapleures, le clypeus et fossettes antennaires, la partie postérieure du propodeum, la partie inférieure de l'abdomen et les pattes. Sur les méso et métapleures les reflets sont dorés sur les pattes bruns. Ailes supérieures enfumées, une tache blanche occupe tout le centre de la cellule médiane,

une bande blanche transverse occupe la moitié de la 1ère cellule cubitale et un tiers de la seconde, le tiers apical de la 1ère discoidale et la moitié de la seconde, de là atteint le bord de l'aile.

Tête bien plus large que le pronotum (relation 1,33). Face nettement convexe, lisse et brillante, sans pubescence ni poils, un peu plus élevée que la surface des yeux. Sur le vertex un groupe de poils assez longs occupe tout l'espace entre les ocelles postérieurs et le bord des yeux. Vertex légèrement élevé entre les ocelles postérieurs. Fissure frontale peu marquée. Bord postérieur de la tête fortement concave. Clypeus transverse, son bord antérieur en courbe régulière, suture droite, quelques rares poils au bord antérieur. Area frontalis peu élevée formant avec le clypeus un angle ouvert. Fossettes antennaires obliques, courtes, peu profondes. Extrémité des mandibules et palpes roux. Mandibules avec une dent interne. Dans les antennes le dernier article est gros et court aussi large que les médians si bien que les antennes peuvent être dites en massue. Mesures de la tête: larg. max. 40, hauteur max. du bord antérieur du clypeus au vertex 35, espace entre les yeux au niveau des ocelles postérieurs 18, au niveau de la suture du clypeus 18, espace entre les ocelles postérieurs 6,5, entre les mêmes et le bord des yeux 4, clypeus 7-19. Antennes I-II-III-IV 10-3-6-6, ant. IX-X-XI-XII 4-4-4-5, largeur des mêmes 3-3-3-3. Côtés du pronotum parallèles. Streptaulus bien marqué antérieurement, une fossette nette devant le tubercle postérieur. Longueur du pronotum sur la ligne médiane sans le collar 26, largeur 30. Largeur du tergite II 32. Fémurs I peu dilatés, long. 32, larg. 10. Tibias postérieurs 44. Éperons blancs, les postérieurs égaux à la moitié des métatarses. Griffes semblables à toute les pattes, bifides, dent interne tronquée. Les 2 nervures récurrentes aboutissent dans la 2ème cubitale; un léger décalage entre la nervure basale et le nervulus; cellule radiale courte pas plus longue que la 2ème cellule cubitale.

Longueur du corps 10 mms.

Aile antérieure 7 mms.

Localité: Campinas (E. de Goiás) XII-935. Borgmeier et H. Souza Lopes col. (1 femelle holotype col. de l'auteur).

Observations. — Se rapproche du type du genre *Rhabdaporus* (*R. bellus* Bradley), cependant j'attire l'attention sur les antennes très particulières et le fait de ne posséder qu'une seule paire de tache blanches sur l'abdomen.

Genus *Cosmiaporus* Bradley

Cosmiaporus minor, n. sp. (Figures 15-16)

Femelle. Entièrement noir; presque tout le corps et les pattes montrant une pubescence variant du gris au brun. Ailes antérieures enfumées, hyalines au centre de la cellule médiane, une tache hyaline sous le stigma à l'extrémité de la 1ère cubitale; ailes postérieures à peu près hyalines. Un très léger reflet bronzé sur les ailes.

Toute la face très convexe, plus élevée que la surface des yeux. Insertion des antennes au niveau de la base des yeux; suture du clypeus vue de face droite au centre puis relevée de chaque côté. Clypeus très transverse avec quelques poils longs dirigés en bas. Fossettes antennaires indéfinies. Area frontalis très haute tombant perpendiculairement au plan du clypeus. Mandibules sans dent ni angularité au bord inférieur. Ocelles postérieurs séparés du bord postérieur par un espace moindre que leur diamètre. Le bord postérieur de la tête forme une ligne fortement concave nettement coupée; la face est couverte de petits poils raides, très courts seulement visibles à un fort grossissement. Mesures de la tête: largeur max. 30, hauteur max. 28, écartement des yeux au niveau des ocelles postérieurs 19, au niveau du clypeus 16, clypeus 3-16, espace entre les ocelles postérieurs 6, entre les mêmes et le bord des yeux 5. Antennes I à IV 9-3-5-6. Côtés du pronotum parallèles, ses faces latérales concaves, streptaulus marqué antérieurement. Largeur du pronotum 25, longueur sans collar 20. Bord postérieur légèrement sinueux et sub-anguleux. Tout le thorax sans poils. Abdomen petit, largeur max. 23. Peu de soies à l'extrémité abdominale. Fémurs I assez fortement dilatés, largeur 12, longueur 25; tibias III 33. Éperons noirs, les postérieurs aussi longs que les 2 tiers du métatarse. Griffes bifides, dent interne guère plus large que l'apicale et tronquée à l'apex, la dent apicale n'est pas absolument droite si bien que l'angle qu'elle forme avec le dos de la griffe est moins net que chez le *Cosmiaporus diverticulus* (Fox), selon la figure de Bradley. Dans l'aile la 2ème cellule cubitale ne reçoit qu'une seule nervure récurrente; nervure basale un peu avant le nervulus; cellule radiale pointue, presque aussi longue que la distance la séparant de l'extrémité de l'aile.

Longueur du corps 7 mms. (holotype), 6 mms. (paratype).

Aile antérieure 5,5 mms. (holotype), 4,5 mms. (paratype).

Localités: Rio de Janeiro, D. F., Silvestre, IV-1933 (holo-

type 1 femelle capturée par l'auteur). Petrópolis (E. do Rio de Janeiro), vallée de Caxambú, alt. 900-1000 mts, V-1935 (paratype 1 femelle capturée par l'auteur). Col. de l'auteur.

Observations. — Certains caractères du genre font défaut ici (angle dentiforme au bord inférieure de la mandibule, écartement des ocelles postérieurs du rebord postérieur de la tête), la conformation de la griffe n'est pas non plus absolument typique mais je crois toutefois cette espèce congénérique avec le *C. diverticulus* (Fox).

Genus *Batozonus* Ashmead

Batozonus pentodon, n. sp. (Figures 17-22)

Mâle. Tête noire; clypeus jaune avec une tache noire; espace entre la base des antennes et le clypeus ainsi qu'une ligne remontant le long du bord interne des yeux, jaunes; bord postérieurs des yeux jaunes; mandibules jaunes à extrémité noire; palpes fauves. Antennes noires à face inférieure brune; scape et 1er article du funicule fauves. Partie dorsale du thorax noire; bord postérieur du pronotum, 2 lignes terminées en pointe antérieurement sur le mésonotum, 2 taches latérales sur le scutellum, postscutellum en entier, 2 taches sur le postmétanotum, jaunes. Propodeum jaune et brun avec dorsalement 2 larges bandes noires longitudinales divergentes. Les faces latérales du pronotum, méso et métapleures variés de jaune et brun clair. Pattes entièrement fauves sauf l'extrémité des tarses III qui sont noirâtres. Tout l'abdomen variant du fauve au brun clair sauf la base du tergite I qui est noire; tergites I à V avec une bande transversale d'un beau jaune vif un peu avant le bord postérieur; sternites correspondants avec une paire de taches jaunes. Ailes entièrement hyalines avec une légère teinte jaune à la base et l'apex (aux ailes postérieures également) très légèrement enfumé; nervures brunes, stigma brun clair.

Aspect général élancé. Bords internes des yeux à peu près parallèles; clypeus large, entier, suture typique du genre; ocelles très grands. Mesures de la tête: largeur max. 65, hauteur max. 59, écartement des yeux au niveau des ocelles postérieurs 26, au niveau du clypeus 28, diamètre de l'ocelle antérieur 7, espace entre les ocelles post. 7, entre les mêmes et le bord des yeux 4, entre les mêmes et le bord postérieur de la tête 10; clypeus 20-33. Antennes I à IV 15-6-17-17. Bord postérieur du pronotum largement angulé; propodeum régulièrement convexe. Mesures de l'abdomen: tergite I largeur minimum 16, maximum 38, longueur 53, tergite II larg. max. 55, long. 47. Plaque génitale ova-

le, plate, faiblement carénée à la base. Genitalia: aedeagus court, plus court que le lobe parapénial, paramères avec, ventralement, un curieux groupe de 5 fortes dents disposées en file et entièrement noires et une apophyse carrée également noire; pour les détails voir les figures. Mesures des pattes III: tibias 100, métatarses 72, éperons 42. Griffes semblables à toutes les pattes, bifides, tordues, la dent apicale tronquée obliquement, l'interne aigue. Dans l'aile antérieure la nervure basale tombe sur la médiane bien avant l'insertion du nervulus; à une distance presque égale à la longueur de celui-ci. Nervulus oblique; cellule radiale longue, son extrémité très rapprochée de l'apex de l'aile; les 1ère et 2ème nervures récurrentes aboutissent respectivement vers le milieu du bord inférieur des 2ème et 3ème cellules cubitales. Mesures: stigma 30, radiale 70, larg. max. de la radiale 16, distance de l'extrémité de la radiale à l'apex de l'aile 30, longueur du bord inférieur de la 2ème cubitale 35, idem pour la 3ème cubitale 37, distance entre l'extrémité de la 3ème cubitale et le bord de l'aile 18. Dans l'aile inférieure la nervure anale est presque interstitielle, aboutissant tout de suite après l'insertion du cubitus.

Longueur du corps 19 mms.

Aile antérieure 16 mms.

Localité: Niterói (E. do Rio de Janeiro), morro do Cavalo, 17-VIII-1947 (holotype 1 mâle capturé par l'auteur). Col. de l'auteur.

Observations. — De nombreuses espèces de *Batozonus* ont été décrites basées principalement sur des caractères de coloration. Ces caractères varient considérablement et je crois qu'il ne sera pas possible d'aller plus loin dans l'étude de ce genre sans une étude comparative des organes génitaux mâles. J'ai d'ailleurs l'impression qu'une division du genre se fera nécessaire; la genitalia de l'espèce ici décrite est entièrement différente de celle de quelques autres espèces que j'ai pu examiner.

Genus *Ameragenia* Banks

Ameragenia fallax, n. sp. (Figures 23-25)

Femelle. Tête, antennes et thorax noirs à dessins blancs. Pattes testacées, fémurs postérieurs noirs; abdomen brun-rouge à base noire et taches blanches latérales. Dans les antennes les articles VI-VII-VIII-IX et X en partie, sont blancs, les 2 derniers noirs. Dans la tête sont d'un blanc jaune: la partie inférieure de la face moins la partie médiane du clypeus et une ligne sur la suture, les mandibules moins l'extrémité, 3 taches sur le front une ovale devant l'ocelle antérieur les autres contre le bord des yeux. Face dorsale du thorax en grande partie noire, bord pos-

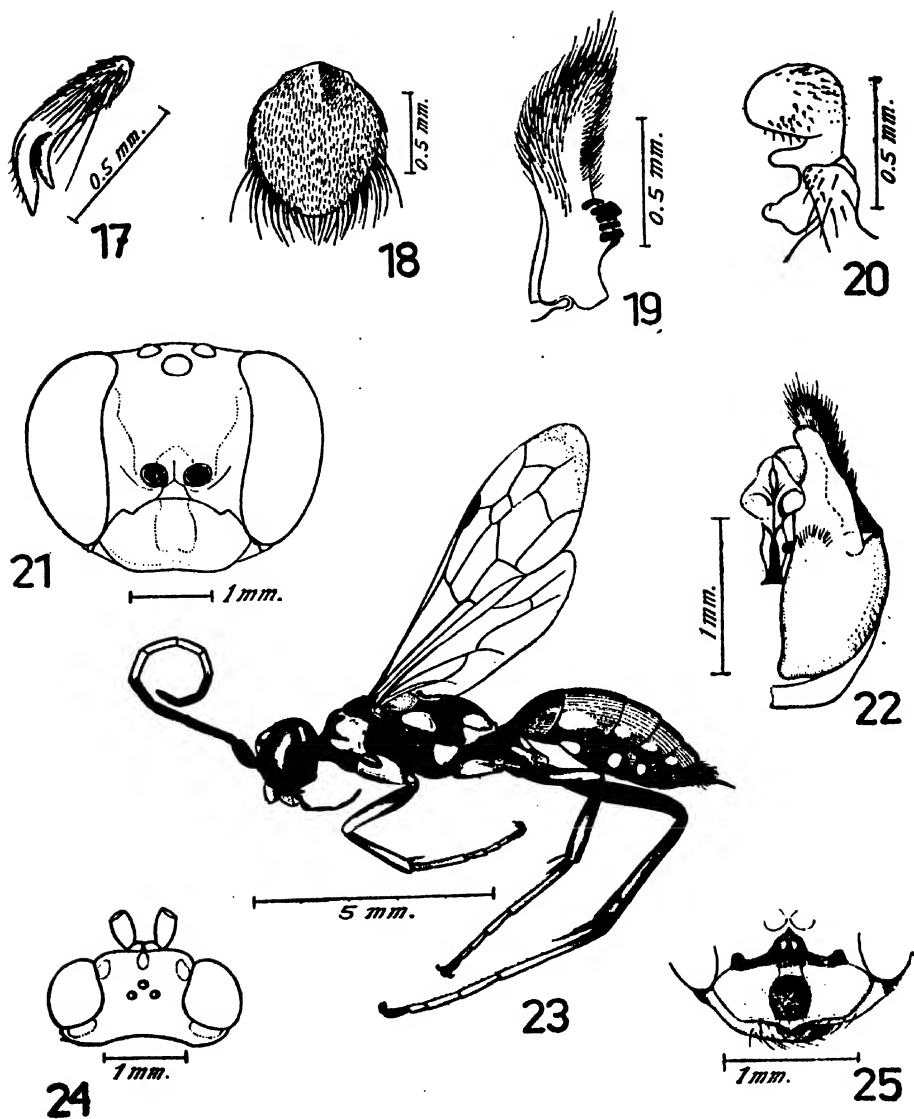


Fig. 17. *Batozonus pentodon* n. sp.; griffe. — Fig. 18. Id.; plaque génitale. — Fig. 19. Id.; paramère. — Fig. 20. Id.; volsella. — Fig. 21. Id.; tête de face. — Fig. 22. Id.; genitalia face dorsale. — Fig. 23. *Ameragenia fallax* n. sp.; profil. — Fig. 24. Id.; tête vue dorsale. — Fig. 25. Id.; clypeus.

térieur du pronotum noir sauf sur les côtés; une petite tache d'un blanc jaune sur le centre du mésonotum et 2 très petites contre les tegulae; centre du scutellum et partie antérieure du postscutellum d'un blanc jaune; angles postérieurs du propodeum blancs. Faces latérales du pronotum, taches sur les méso et métapleures, partie inférieure des hanches d'un blanc jaune. Tergite I presque

entièrement noir. Taches blanches latérales sur les tergites II-III-IV et V, les plus grandes sur le tergite II, les sternites II-III et IV également avec des taches blanches. Aux pattes postérieures les fémurs sont noirs, les tibias testacés et les tarses blancs moins le dernier article qui est noir; autres pattes testacées avec le dernier article des tarses noir; palpes testacés. Ailes entièrement hyalines, l'extrémité apicale des ailes antérieures très légèrement obscurcie.

Face très enflée entre les ocelles et la base des yeux. Clypeus très convexe, son bord antérieur formant une petite pointe au centre. Mesures de la tête: largeur 40, hauteur max. 37, écart des yeux au niveau des ocelles postérieurs 17, au niveau du clypeus 19, espace entre les ocelles postérieurs 3, entre les mêmes et le bord des yeux 5, clypeus 10-20. Quatre premiers articles des antennes 12-5-17-16. Palpes longs et fins. Bord postérieur du pronotum en courbe régulière; scutellum convexe. Propodeum avec une faible pubescence et des poils dressés à sa partie postérieure. Tergite I pédonculé. Sternite II avec l'impression transversale très forte. Extrémité de l'abdomen poilue. Tibias postérieurs non dentés, avec plusieurs rangées de très petites épines; éperons égaux à la moitié du métatarse. Griffes dentées, la dent interne très apicale. Dans l'aile la 1ère nervure récurrente, qui est droite, tombe dans la 2ème cellule cubitale à son tiers basal; la 2ème récurrente vers le milieu de la 3ème cubitale. Basale bien avant le nervulus. Longueur de la radiale 30, larg. 8, distance de l'extrémité de la radiale à l'apex de l'aile 20, longueur de la 2ème cubitale 10, de la 3ème 21. Dans l'aile inférieure l'anale avant l'insertion du cubitus.

Longueur du corps 9,5 mms.

Aile antérieure 7,5 mms.

Localité: Rio de Janeiro, D. F., Jacarépaguá, açude Camorim, alt. 450 mts., 19-XI-1947 (holotype 1 femelle capturée par l'auteur). Col. de l'auteur.

Observations. — Espèce curieuse par sa coloration semblable à celle de certains Ichneumonides et par le renflement particulier de la face.

**Sobre Tingídeos Americanos com Descrições de Espécies
Novas. (Hem.)**

Por Oscar Monte, Instituto Biológico, S. Paulo

Birabena carvalhoi, n. sp.

Muito alongada, bastante estreitada (das espécies até o momento descritas é a mais afilada). Colorido geral palha, com cabeça e antenas castanho-escuras. A primeira com 4 longos espinhos amarelos, sendo o par anterior deitado sobre a superfície da cabeça e com a extremidade apical alcançando a base do par posterior, o qual se alonga até o ápice do segmento basal das antenas.

Antenas alongadas, com os dois primeiros segmentos castanho-escuros, sendo o primeiro uma e meia vezes maior do que o segundo; o terceiro e quarto escurecidos, com pêlos, tendo o primeiro deles o ápice amarelado e o último, desta mesma cor a base, sendo o 4º três vezes menor que o comprimento do terceiro (no macho as antenas são ligeiramente menores).

Rostro alcançando a metade do mesosterno. Abertura rostral larga, apertando-se junto ao segundo par de patas, e alargando-se logo depois.

Pronoto puncturado, lateralmente castanho; tricarinado; as carenas bem distintas porém sem aréolas. Vesícula muito achatada, levemente excavada, com aréolas distintas. Paranotos estreitos, bisseriados na frente até a metade, depois unisseriados, porém com aréolas muito pequenas.

Élitros muito longos; área costal unisseriada, as aréolas finais, maiores; subcostal bisseriada; discoidal longa, prolongando-se além da metade dos élitros, com quatro carreiras de pequenas aréolas na sua parte mais larga.

Parte inferior do tórax escura, e do abdômen clara. Patas amareladas.

Comprimento 3.04 mm. (macho) e 3.34 mm. (fêmea); largura 0.52 mm.

Holótipo (macho) e alótipo (fêmea), colhido em Setembro 9, 1946 pelo Dr. José Cândido Carvalho, a quem a espécie é dedicada pelos excelentes trabalhos que vem realizando sobre Mirídeos.

Muito próxima de *B. birabeni* Drake & Hurd, porém mais afilada, paranotos e área discoidal mais estreitos.

Atheas cearana, n. sp.

Estreita, pardacentá, com os paranotos e área costal mais claros. Cabeça e pronoto cobertos com densa secreção cerosa, que se aglomera especialmente junto ao colo. Cabeça somente com o par anterior de espinhos, e estes muito curtos. Antenas castanho-escuras, o último segmento quase preto e coberto de pêlos; o primeiro quase o dobro do segundo, e o terceiro três vezes o comprimento do quarto.

Pronoto castanho-escuro, tricarenado; as carenas mui baixas, sem aréolas, porém bem distintas. Parânotos dirigidos para cima, bisseriados na frente e unisseriados atrás, sendo que a carreira inferior de aréolas é, às vezes, composta de uma só célula alongada e larga.

Élitros alongados, foscos, excepto a área costal, esta é largamente bisseriada, um ou outro exemplar apresenta uma carreira extra tricelular; subcostal estreita, bisseriada; discoidal curta, com cinco carreiras de aréolas muito pequenas.

Patas foscas, os fêmures com a base mais clara. Rostro curto, amarelado, escuro no ápice, e alcançando o mesosterno. Búcula profunda, com a abertura rostral rasa.

Comprimento 2.43 mm.; largura 0.90 mm.

Holótipo (macho) e alótipo (fêmea) e cinco paratipos, Baturité, Ceará, colhidos em Maniçobeira, (*Manihot*, sp.), em 29-VI-1946, pelo Dr. Rubens Lima.

Pliobyrsa pulcherrima, n. sp.

Cabeça escura com cinco longos espinhos amarelados, estando o par posterior deitado sobre a sua superfície.

Antenas bem alongadas, amareladas, porém com o último segmento com a metade distal escura. O primeiro segmento três vezes maior do que o segundo; e três vezes menor do que o terceiro; o quarto quase duas vezes o comprimento do terceiro.

Rostro curto, castanho e não alcançando o metasterno.

Pronoto dourado, com a porção triangular escurecida. Paranotos largos, bisseriados. Vesícula tectiforme, pouco avançada sobre a cabeça. As carenas unisseriadas, as laterais mais baixas do que a mediana, esta com aréolas um pouco mais largas e traz na sua metade uma mancha escura.

Élitros largos com a área costal quadrisseriada, porém com 5 carreiras de aréolas na sua parte mais larga, e mais ou menos na sua metade uma faixa escura; subcostal muito alta, com cinco

carreiras de pequenas aréolas; discoidal piriforme, com 4 carreiras de células na sua maior largura.

Patas amareladas, e tarsos pretos.

Comprimento 3.13 mm.; largura 2.04 mm.

Holótipo (macho) e 10 paratipos na coleção do autor; alótipo (fêmea) e 8 paratipos na coleção do Instituto de Experimentação Agrícola, Km. 47, Rio de Janeiro. Material colhido pelo Dr. P. Wygodzinsky, no Parque Nacional, Serra dos Órgãos, Teresópolis, Estado do Rio, de 18-22 de Julho de 1947.

Espécie bem distinta de todas as outras até agora descritas.

Gargaphia boliviana, n. sp.

Alongada, com cinco longos espinhos na cabeça, sendo os posteriores dirigidos para cima e para fora, os anteriores curtos, e o mediano alongado e ereto. Antenas bem longas, cobertas de pêlos, os dois primeiros segmentos castanhos, sendo o primeiro o dobro do segundo; e o terceiro um pouco mais de três vezes maior do que o quarto. Os dois primeiros segmentos castanhos, o terceiro amarelado, e o quarto, quase totalmente escuro.

Rostro castanho-escuro, alcançando a nervura rostral.

Pronoto elevado, preto, coberto de penugem esbranquiçada, com a porção triangular clara. Paranotos quadrangulares dirigidos para cima, bisseriados, e com duas carreiras trisseriadas oposto aos *humerali*. Vesícula cheia e alta. Carenas largamente areoladas, as laterais bem afastadas da vesícula, e a mediana ligeiramente mais alta do que as laterais.

Élitros afilados com a área costal bi, tri e quadrisseriada na sua maior largura, e cortada por três ou quatro nervuras pretas; subcostal trisseriada (no macho bisseriada); a discoidal larga, excavada, com seis carreiras de aréolas na sua maior largura (a do macho mais estreita), com as nervuras salientes e tendo uma pequena mancha escura, quase na parte apical, que por sua vez é escurecida.

Parte inferior preta para o tórax e castanha-escura, para o abdômen.

Patas amareladas, cobertas de pêlos, e tarsos escuros.

Comprimento 3.47 mm.; largura 1.52 mm.

Holótipo (macho) e alótipo (fêmea) e 27 paratipos, colhidos pelo sr. R. Zischka, em Cochabamba, Bolívia.

A espécie é bem distinta, todavia, apresenta semelhanças com

G. bergi Monte, da qual se afasta pelo formato dos élitros e dos paranotos.

Gargaphia trichoptera Stal

14 exemplares de Puente de Iglesias (Cauca, Antioqueno) Colômbia, colhidos sobre feijões pelo Prof. F. Gallego. 16 exemplares de Huanuco, Peru, colhidos por J. Soukup.

Leptopharsa distinconis Drake

10 exemplares, Belém, Pará, 7-4-1946, colhidos pelo Dr. Rubens Lima, em *Siparuna guyanensis* Aubl. (Monimiaceae), vulgarmente conhecida por Capitú ou Caa-pitiú.

Esta espécie tem uma larga distribuição, e é esta a primeira vez que se dá exatamente o nome da planta hospedeira, visto como anteriormente nós a colhemos em uma Rubiácea, sem elementos de classificação.

Estes exemplares são menores, mais estreitados e escuros do que os que foram colhidos em Minas Gerais.

Aristobyrsa latipennis (Champion)

3 espécimens colhidos pelo Dr. Ezechias Heringer, na Estação Experimental de Agua Limpa, Minas Gerais, em *Lucuma*, sp. (Sapotácea). Pela primeira vez se conhece a sua planta hospedeira. A área de dispersão desta espécie vai do Panamá até Minas Gerais.

Pleseobyrsa chiriquensis (Champion)

14 exemplares, de Itagui, Valle de Medellin, Antioquia, Colômbia, colhidos em Abacateiro (*Persea americana*), em Março, pelo Prof. F. Gallego.

Teleonemia carmelana (Berg)

5 exemplares, de Pemehue, Lag. Mallaco, Chile, em *Lippia juncea* (Verbenácea) e 8 exemplares em *Rhaphithamus spinosus* (Verbenácea), colhidos pelo Pe. G. Kuschel, em 25-1-1946.

New South American Scarab Beetles of the Genus *Astaena*.

By Lawrence W. Saylor, Research Associate, California Academy of Sciences.

The four new species of *Astaena* described herein have been awaiting description for some time. The types remain in the Saylor Collection of Nearctic and Neotropical Scarabs, which has been presented to the California Academy of Sciences.

Astaena excisipes, new species

Male: Oblong-oval, wider behind. Color rufocastaneous, shining, apparently glabrous above except for a large seta on each side of clypeal base. Clypeus short, broad, the sides hardly reflexed and rather strongly narrowed apically; apex slightly reflexed, the apical margin very strongly but very widely emarginate, the front angles very narrowly but subangularly rounded; disc polished, tumid at center and deeply longitudinally impressed at each side, the punctures large, regular and somewhat dense. Front punctate near clypeal suture, smooth near eye margins (and remainder broken in the *type*). Antenna 8-segmented, the club elongate and subequal to funicle; 4th segment very long, about $3\frac{1}{2}$ times longer than the 3rd. Thorax twice broader than long, the sides nearly straight and only slightly narrowed apically, sides entirely without cilia or crenulations; apical margin sinuate; front angles large and very bluntly rectangular, almost acute; hind angles with a deep, *U-shaped notch* right at the hind angle, the outer portion of the notch forming a blunt angle with lateral margin and the inner notch margin forming a sharp acute tooth with the basal margin; base rounded, neither ciliate nor margined; disc evenly subconvex, very strongly shining, the moderately large punctures very irregularly placed, being rather sparse along base and near sides, but separated by 1 to 3 times their diameters near center-disc. Scutellum faintly triangular, faintly and obliquely impressed laterally. Elytra coarsely rugose, the sutural striae strongly narrowed basally; 1st and 3rd intervals strongly and densely punctured, and rather wide; 2nd and 4th intervals subcostate, smooth, and half the width of the 1st and 3rd. Pygidium convex, polished, apex strongly narrowed and rounded; disc *faintly* and longitudinally impressed, with scattered strong punctures, and long hairs apically. Abdomen with sternites 2-5 subequal, polished, each slightly impressed and opaque along basal margin only, with

moderately strong scattered setigerous punctures; 6th sternite half the length of 5th, polished, pilose, impressed. Metasternum longitudinally impressed at center and quite smooth, very strongly punctate laterally. Hind tarsi with basal segment very long but subequal to next two combined, the hind spurs only barely half as long as the basal segment. Mid and hind claws similar, strongly cleft with the lower tooth broader. Fore claws different from those of the other legs and also between themselves: outer front claw with the lower portion of the cleft very broad and truncate, about 4 times wider than the small acute apical tooth, the lower portion bluntly truncate apically; inner front claw with basal portion about $2\frac{1}{2}$ times wider than apical portion of cleft. Fore tibia strongly tridentate and coarsely crenate on outer margin basally. Length 9.5 mm. Width 4.7 mm.

The unique male Holotype in the Saylor Collection is from "Ecuador, collected by Baron". It was received from the Moser Collection through Dr. Ohaus and was determined by Moser as *producta* Bates; from this the new species differs considerably in the much smaller size and the very different clypeal and thoracic shapes. *A. excisipes* differs from *lurida* Moser from Bolivia especially in the apically narrowed and very sinuate clypeus, the larger size, and the different color.

Astaena maqueta, new species

Male: Small, oblong-oval, very hairy species. Color rufocastaneous, the thorax rufous. Clypeus fairly large and somewhat quadrangular, the sides parallel and slightly reflexed; apex truncate and very strongly reflexed; disc very gibbose and very coarsely and very densely punctate. Front very convex, with fine, dense punctures and short hairs. Eyes large. Antenna 8-segmented, testaceous, the club long and a little longer than funicle; the 4th segment very long and 3 times longer than the 3rd. Thorax short and very transverse, about $2\frac{1}{2}$ times broader than long, sides evenly rounded, the widest part slightly in front of the middle, margins ciliate; front angles large and subexplanate but narrowly rounded, hind angles obtusely rounded; disc convex and entirely and coarsely punctate, with dense, short suberect hairs. Elytra rugose, with coarse dense punctures and dense, short suberect hairs. Abdomen fairly densely setigerously punctate. Claws suberect hairs, the striae on intervals not too well delineated. Pygidium subshining, convex, densely punctate with fine, short

of all the feet similar, narrowly cleft with the lower tooth wider and stronger. First segment hind tarsi long but subequal to next two combined, and each tarsal segment coarsely rugose.

Female: Similar to male except as follows: The antennal club is much shorter and the abdomen more robust. Length 5.8-6.8 mm. Width 3.-3.5 mm.

The male Holotype and female Allotype and an additional pair of paratypes, all in the Saylor Collection, are from "Maqueta, Salta Province, Argentina, collected in October". The species is related to *pilosa* Moser but differs especially in the much smaller size, less opaque color, 8-segmented antennae, and the fact that the thoracic puncturation in the present species is not unequal.

Astaena nigrona, new species

Male: Oblong-oval, a little wider behind. Color very dull, opaque, nigrocastaneous, the legs rufocastaneous and shining. Apparently glabrous above. Head shining. Clypeus long and strongly narrowed apically, the sides straight and not at all reflexed; apex strongly reflexed and subtruncate, the angles narrowly rounded; clypeal disc faintly convex, the punctures coarse and fairly dense. Front evenly convex, with finer moderately dense punctures, with midcenter area smooth or nearly so. Eyes large, canthus from above very small. Antenna 8-segmented, the club a little shorter than the stem; 4th segment very long, about 3 times longer than the 3rd. Thorax with sides subangulate at middle and very distinctly though shallowly sinuate each side towards the angles, with a *long cilia* at each front angle just inside the side margin, and another in front of each rectangular hind angle; front angles prolonged but very bluntly subacute; front margins strongly margined; center base with a large deep fovea at base in front of the scutellum; disc convex, the puncturation apparently dense and coarse but nearly obscured by the dull opaque surface. Elytra with intervals irregularly and somewhat densely punctured, the first twice as wide as the second or third, and a little flatter. Pygidium convex, piceous and very opaque, with small punctures and long apical hairs. Abdomen shining, flat, with a few hairs near base of each sternite; 6th sternite half the length of preceding and very dull and punctate. Metasternum opaque, finely punctate, very nearly glabrous. Both claws hind tarsi similar and deeply cleft. Outer claw of mid tarsi with lower tooth very broad and obliquely truncate apically. Inner claw front

tarsi with lower tooth very broad and obliquely truncate, the outer claw with lower tooth much broader than the upper (but still much less broad and more pointed than the lower tooth of the inner front claw). Front tibia tridentate. First segment hind tarsi very long and equal to next two combined.

Female: Similar to male except at follows: base of thorax not at all foveate although narrowly impressed along margin at center-base; sides of the thorax with a few more setae; clypeus a little shorter, and broader apically; antennal club short, about equal to segments 3-5 combined in length; all tarsal claws similar, and widely and deeply cleft with lower tooth only a little broader than the upper; first segment hind tarsi distinctly longer than the next two combined. Length 10-11 mm. Width 5-5.5 mm.

The male Holotype is from "Rio Chil., Columbia", and the female Allotype if from "Bogota, Columbia, May", and both are in the Saylor Collection. An additional female from "Venezuela" I leave without type designation, although it is probably this species; it differs from the Allotype mainly in its slightly more shining color and in having the first elytral interval only slightly wider than the second, rather than distinctly wider as in the *nigrona* allotype.

A. nigrona is near *pruinosa* Moser but the clypeus is very much longer and the anterior thoracic angles are not correct; from male *obscurata* Moser it differs especially in the presence of the large fovea at the center base of the thorax.

Astaena explaniceps, new species

Male: Narrow, elongate, subparallel and hardly wider behind. Color castaneorufous, semiopaque and only faintly shining, with some dorsal hairs. Clypeus large, sides subparallel and reflexed, apex from straight dorsal view truncate and strongly reflexed, and slightly pointed at middle from dorso-posterior view; clypeal disc coarsely and very rugosely punctate, with several long erect hairs, and a short, oblique, impressed line just before each anterior-outer angle; clypeal suture fine, impressed, angular. Eyes fairly large, the *canthus long* and *narrow* and reaching back halfway to the posterior margin of the eye. Front convex, with small irregularly placed punctures and a few short hairs, the punctures somewhat sparsely placed each side of middle. Antenna 8-segmented; 2nd and 3rd subequal, the 2nd globose, the 4th very long and about 3 times length of the 3rd; 5th small; club long and narrow, nearly subequal to stem. Thorax with sides

subangularly rounded before the middle, and sides faintly emarginate behind middle and before the rather strongly explanate though narrowly rounded and obtuse hind angles; front angles subrectangular; front and lateral margins ciliate; entire hind margin strongly impressed and subexplanate except right at center base which is not at all margined; disc strongly rounded, apparently glabrous, the punctures moderate in size and somewhat irregularly placed, being denser near sides, sparser near front angles, and much sparser at very center of disc. Scutellum small, elongate, with several punctures at middle. Elytra long and subparallel, with sides strongly pilose; disc with striae finely and closely punctate, the intervals of approximately same width and subconvex, and with a very few highly irregularly-placed punctures, many of these bearing long erect hairs. Pygidium convex, opaque, the apex narrowly rounded; disc subrugose and entirely punctate, the punctures somewhat irregularly placed and with many short suberect hairs and a few long erect hairs, the latter present especially at sides and apically. Abdomen convex, subopaque, — sternites 2-5 subequal in length, with semidense, subprocumbent setigerous punctures, the hairs short and long; 5th two-fifths the length of 4th, and strongly opaque, also with scattered erect hair. Metasternum opaque, with dense setigerous punctures along apex and laterally, and very sparse punctures in medio-basal half, the hairs short and semierect. Hind tarsi with basal segment nearly subequal to next two. All claws similar throughout all feet: claws narrowly and strongly cleft, the inferior tooth twice broader and obliquely truncate apically. Front tibia strongly bidentate. Male genitalia with the lateral lobes very short and apparently asymmetrical. Length 9.2 mm. Width 3.8 mm.

The unique male Holotype in the Saylor Collection is from "Salta Province, Argentina". It is very near *corumbana* Moser but differs in the posterior half of the thorax being emarginate laterally, and the pygidium pilose all over and not just at apex. From *cordobana* Moser this new species differs especially in the slightly larger size and the non-testaceous color, as well as the non-shining surface lustre.

Novas Espécies de Palpomyia do Brasil
(Diptera, Ceratopogonidae).

Por J o h n L a n e, Departamento de Parasitologia, Faculdade de Higiene
e Saúde Pública da Universidade de São Paulo, Brasil

(Com 1 figura).

Estudamos neste trabalho uma coleção de 39 exemplares, provenientes de diversos Estados do Brasil meridional, comprovando, nessa coleção, a presença de seis espécies novas e descrevendo os alótípos de duas outras. Os números dos exemplares são os da coleção padrão do Departamento de Parasitologia da Faculdade de Higiene e Saúde Pública de S. Paulo. As medidas usadas obedecem ao critério por nós adoptado. (Vide J. L a n e, 1946, Rev. Ent., 17, 1/2: 204, nota).

Além das espécies novas averiguamos as seguintes, já descritas: *Palpomyia crassicus* Kieffer, 1917 no Estado de S. Paulo, S. José dos Campos; *P. castanea* Macfie, 1939 no Estado de S. Paulo, Osasco; *P. chilensis* Ingram e Macfie, 1931 no Estado de S. Paulo, Itatinga; *P. brasiliensis* Macfie, 1939 no Estado de Minas Gerais, Governador Valadares; *P. conifera* Macfie, 1939 nos Estados de Goiás (Corumbá), Rio de Janeiro (estrada Rio-S. Paulo, km. 47) e S. Paulo (Capital e Itatinga) e *P. sordidipes* Macfie, 1939 no Estado de Minas Gerais, Governador Valadares.

O gênero *Palpomyia* Megerle (in Meigen), 1818, é representado, na América do Sul, por 25 espécies. Macfie (1939) fez excelente revisão deste grupo, na qual inclui ótima chave que muito auxilia a diagnose específica. Para maior facilidade indicamos, no nosso trabalho, o dicótomo da chave de Macfie em que as nossas espécies devem figurar. Tal método evita a preparação de nova chave, e, ao mesmo tempo, facilita a colocação das nossas espécies.

Palpomyia brasiliensis Macfie, 1939

1939, Macfie, Rev. Ent., 10: 213.

Temos cinco exemplares que concordam com a diagnose original excepto o número de espinhos no fêmur anterior que varia de apenas um até quatro.

Palpomyia conifera Macfie, 1939

1939, Macfie, Rev. Ent., 10: 214.

A diagnose desta espécie se baseia em um macho. Temos cinco fêmeas que correspondem à descrição. Escolhemos uma delas para alótipo desta espécie e a descrevemos a seguir:

Fêmea. — Comprimento do corpo 2,8 mm.; asa 2,9 mm. Cabeça: Palpo castanho-claro, o segundo e quarto segmentos com quase o mesmo comprimento, o terceiro pouco mais curto, sem área porosa e não enegrecido. Antena com o escapo e toro castanho-enegrecidos, os segmentos flagelares com os seguintes comprimentos: III 100, IV e V 62, VI a IX 58, X 75, XI 146, XII 150, XIII 175, XIV e XV 167. Comprimento total dos segmentos III-X igual a 531; comprimento dos segmentos XI-XV igual a 805. Occipício enegrecido-brilhante.

Tórax enegrecido-brilhante. Mesonoto com pequeno tubérculo distinto; cerdosidade discreta. Escutelo com quatro cerdas marginais.

Pernas: Coxas castanho-amareladas. Fêmur anterior cerca de duas vezes a largura da tíbia e armado de cinco espinhos (o número de espinhos nos nossos exemplares varia de quatro a seis); fêmur anterior e mediano castanho-amarelados, a extremidade um pouco mais escura; fêmur posterior inerte, castanho-enegrecido salvo estreito anel na base e largo anel pré-apical. Tibia anterior e mediana castanho-amareladas, a posterior enegrecida; basitarsos anteriores e medianos amarelados, os outros segmentos gradualmente mais escuros; tarsos posteriores escuros; garras simples. T. R. 2,3.

Asa levemente enfuscada, principalmente na porção dorsal; 1.^a célula radial fechada, alongada, a 2.^a quase três vezes o comprimento da 1.^a. Balancim com haste enfuscada, o capítulo enegrecido.

Abdômen: Tergitos castanho-enegrecidos-brilhantes, mais claros basalmente. Esternitos castanho-enegrecidos e opacos.

Tipos. — Alótipo: uma fêmea registrada sob o número 6928. Mais quatro espécimens registrados sob os números 6929 a 6932.

Proveniência do material estudado. — Brasil, Estado de Goiás, Corumbá, Faz. Monjolino, XI. 1945 (M. P. Barreto col.).

Palpomyia sordidipes Macfie, 1939.

1939, Macfie, Rev. Ent., 10: 209.

Temos um exemplar macho que elegemos o alótipo desta espécie.

Mach o. — Antena com o terceiro segmento flagelar mais largo, fusiforme, o quarto ao décimo primeiro fusiformes, o décimo segundo mais alongado que estes e sub-cilíndrico; o penacho com poucos elementos e amarelado; segmentos treze a quinze apenas pilosos, treze com aproximadamente a metade do comprimento de quinze e catorze que são sub-iguais. Demais caracteres semelhantes aos da fêmea.

Genitália (vide fig. 1): Basistilo cerca de três vezes a largura basal, sub-cilíndrico, espiculoso, esparsamente cerdoso na margem externa e na porção mediana da interna. Dististilo com cerca da metade do comprimento do basistilo, engrossado na base, terminando em bico adunco e possuindo além de espiculosidade, cerdosidade interna e dorso-apical. Nono tergito cilíndrico, com os lobos fundidos, os ângulos superiores salientes e providos de longa cerdosidade, o meio chanfrado. Demais estruturas como na figura 1.

Palpomyia lutzii, n. sp.

Comprimento do corpo 3,5 mm.; asa 2,8 mm.

Fêmea. — Cabeça amarelada. Palpo castanho, o primeiro segmento globoso, segundo o mais longo, quarto pouco mais curto que o segundo, terceiro com dois terços do comprimento do segundo. Clípeo amarelado, com aproximadamente oito cerdas. Antena com o escapo e toro amarelados, os segmentos amarelados na base, os apicais mais escuros bem como os segmentos XI-XV; comprimento dos segmentos III 100, IV 90, V 85, VI a VIII 80, IX 85, X 100, XI 240, XII 250, XIII e XIV 205, XV 250; comprimento total dos segmentos III-X igual a 700; dos segmentos XI-XV igual a 1150. Occipício castanho-claro, as cerdas marginais desta cor.

Tórax: Mesonoto com o tubérculo anterior distinto e rombo no ápice; disco com tegumento enegrecido excepto duas extensas manchas amareladas, unidas anteriormente e uma estreita estria mediana também dessa cor. Escutelo enegrecido, com aproximadamente seis cerdas longas na margem. Pleuras amareladas.

Pernas: Coxas amareladas. Fêmur anterior amarelado, o ápice enegrecido e com cerca de cinco espinhos infero-distais dispostos em fileira irregular; tíbia amarelada desde antes do meio

até quase a extremidade, o restante enegrecido; basitarso e segundo tarso amarelados, o restante enegrecido. Par mediano com o fêmur da coloração do anterior e com um ou dois espinhos infero-distais; tibia como a anterior, a área amarelada pouco mais extensa; tarsos como no par anterior. Par posterior com o fêmur pouco menos da metade basal de coloração amarelada, o restante enegrecido, a porção infero-distal com três ou quatro espinhos; tibia posterior como as outras mas a porção escura mais extensa; tarsos como os anteriores. T. R. 2,9.

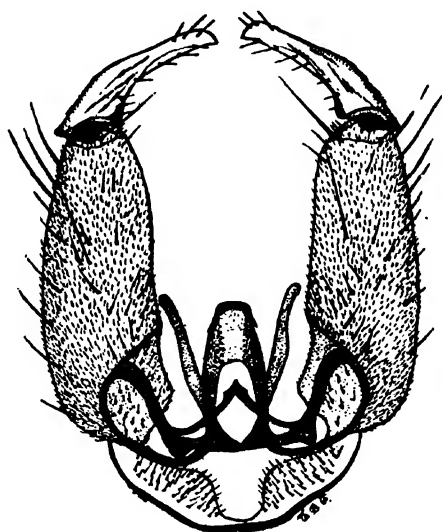


Fig. 1. *Palpomyia sordidipes*, n. sp., genitália do macho.

Asa com a porção anterior um pouco mais escura. Balancim esbranquiçado.

Abdômen castanho-escuro, os segmentos medianos um pouco mais claros; espermatecas duas, fortemente esclerotizadas, uma maior que a outra; a maior cerca de um quinto mais longa que larga, a segunda quase arredondada, o ducto de ambas terminal e fracamente esclerotizado.

Tipos. — Holótipo fêmea; parátipos seis fêmeas. Registrados sob os números 6907, 6918 e 6923. Três parátipos a serem depositados em outras Instituições.

Localidade tipo. — Brasil, Estado do Rio de Janeiro, Nova Friburgo (Petr Wygodzinsky col.).

Palpomyia barrettoi, n. sp.

Comprimento do corpo 5,5 mm.; asa 4,5 mm.

Fêmea. — Cabeça: Partes bucais mais curtas que o comprimento da cabeça. Palpo castanho-escuro, primeiro segmento globoso, segundo o mais longo, terceiro com dois quintos do comprimento do segundo, o quarto com cerca do mesmo comprimento que o terceiro. Antena com escapo e toro amarelados (o flagelo falta). Occipício amarelado e brilhante.

Tórax: Mesonoto com pequeno tubérculo anterior; disco amarelado-avermelhado, brilhante, finamente pontilhado e piloso, com apenas seis cerdas mais longas adiante da raiz da asa. Escutelo enegrecido, um pouco mais claro nos lados e possuindo cerca de seis longas cerdas marginais. Postnoto amarelo-avermelhado. Pleuras amareladas.

Pernas: Coxas amareladas. Par anterior com o fêmur engrossado e mais de duas vezes a largura da tibia, provido internamente de mais ou menos vinte espinhos insertos do meio para o ápice salvo um deles que está mais para a base; articulação fêmuro-tibial mais escura, bem como o ápice da tibia; basitarso e segundo tarso amarelados, mais escuros no ápice bem como os demais que são escuros; quarto segmento cordiforme; quinto provido de bastonetes, as garras com quase o comprimento do quinto segmento. Par mediano com o fêmur alongado; possuindo a porção infero-distal munida de dois espinhos; tibia com quase o comprimento do fêmur, ambos amarelados excepto a articulação fêmuro-tibial e o ápice da tibia que são mais escuros; tarsos como no par anterior. Par posterior com o fêmur levemente entumescido, escuro no quinto apical, com cinco espinhos infero-distais; articulação fêmuro-tibial escura bem como a base da tibia; o ápice levemente mais escuro; basitarso e segundo tarso amarelados, os outros enegrecidos e com as características do par anterior.

Asa hialina. Balancins esbranquiçados.

Abdômen com os tergitos amarelados excepto o sétimo que é, na maior parte, enegrecido. Esternitos com os três primeiros segmentos com uma faixa enegrecida no meio, o quarto e quinto com manchas laterais dessa cor e que invadem levemente as margens dos tergitos; espermatecas duas, fortemente esclerotizadas, arredondadas, uma delas maior que a outra, ambas com o ducto terminal e fracamente esclerotizado.

Tipo. — Holótipo fêmea. Registrado sob o número 6906.

Localidade tipo. — Brasil, Estado do Rio de Janeiro, Itatiaia, Maromba, VIII. 1945 (M. P. Barreto col.).

Palpomyia oliveirai, n. sp.

Comprimento do corpo 3 mm.; asa 2,4 mm.

Fêmea. — Cabeça: Palpo com o segundo ao quarto segmentos castanhos, o segundo pouco mais longo e grosso, o terceiro um pouco mais curto. Clípeo castanho-enegrenido, revestido de longa, porém discreta pilosidade. Antena com o toro avermelhado, os segmentos com os seguintes comprimentos: III 100, IV a VI 78, VII 83, VIII 78, IX 83, X 90, XI 160, XII 167, XIII 178, XIV 183, XV 205. Comprimento total dos segmentos III-X igual a 668; dos segmentos XI-XV igual a 893. Occipício castanho-avermelhado-brilhante, as cerdas marginais dessa cor e discretas.

Tórax: Mesonoto castanho-avermelhado excepto estria anterior cuneiforme e uma mancha adiante do escutelo que são enegrecidas; revestido de curta pilosidade e cerdas implantadas em tubérculos salientes. Escutelo com seis cerdas marginais. Postnoto enegrecido. Pleuras castanho-avermelhadas, com mancha enegrecida na porção superior da esternopleura.

Pernas: Coxas castanho-avermelhadas, a anterior um pouco mais clara. Fêmures amarelados, as articulações fêmuro-tibiais enegrecidas, as tíbias amareladas. Fêmur anterior pouco entumescido e com três espinhos ínfero-distais; fêmur posterior com a porção distal mais escura e com um ou dois espinhos inferiores; tarsos amarelados, o quarto e quinto segmentos mais escuros; garras tarsais curtas. T. R. 2,5.

Asa hialina. Balancim com a haste clara e o capítulo enegrecido.

Abdômen castanho-escuro, o primeiro tergito enegrecido no ápice. Esternitos amarelados, opacos, o quarto com grande mancha lateral enegrecida.

Tipo. — Holótipo fêmea. Registrado sob o número 6924.

Localidade tipo. — Brasil, Estado de Minas Gerais, Governador Valadares (S. J. Oliveira col.).

Palpomyia nigroscutellata, n. sp.

Comprimento do corpo 3 mm.; asa 2,3 mm.

F.ê m e a. — Cabeça: Partes bucais castanhas, um pouco mais curtas que o comprimento da cabeça. Palpo amarelado, primeiro segmento globoso, segundo o mais longo, terceiro mais curto que o segundo, quarto o mais curto. Clípeo amarelado. Antena com o toro e escapo da cor do clípeo, os segmentos basais mais claros, os restantes escuros; flagelo com os seguintes comprimentos: III 100, IV 83, V a VII 75, VIII 83, IX 80, X 83, XI 283, XII 267, XIII 258, XIV 233, XV 325. Comprimento total dos segmentos III-X igual a 654; dos segmentos XI-XV igual a 1366. Occipício castanho-claro.

Tórax com tegumento amarelado. Mesonoto com forte e longo tubérculo anterior de ápice agudo; disco quase sem cerdas existindo apenas aproximadamente oito cerdas adiante da raiz da asa. Escutelo enegrecido e com cerca de seis cerdas marginais longas. Postnoto também enegrecido. Pleuras amareladas.

Pernas: Coxas amareladas. Par anterior. Fêmur fortemente engrossado, i. é, cerca de três vezes a grossura da tíbia, amarelado excepto no ápice onde é castanho-enegrecido, provido de fi-leiras irregulares contando ao todo com aproximadamente vinte es-pinhos inferiores e dispostos nos dois terços apicais; tíbia amare-lada, a base escurecida; basitarso e segundo tarso amarelados, os três últimos segmentos enegrecidos; quarto segmento tarsal cor-diforme, o quinto sem bastonetes e terminando em duas garras curtas. Par mediano com o fêmur delgado, alongado, inerte; tí-bia amarelada excepto na articulação fêmuro-tibial que é escure-cida; tarsos como no par mediano. Par posterior como o mediano salvo o fêmur que é um pouco mais entumescido e alongado.

Asa hialina. Balancins esbranquiçados.

Abdômen: Tergitos castanhos excepto o sétimo e oitavo que são lateralmente mais escuros. Esternitos com uma mancha lateral enegrecida em IV; tal mancha invade a margem dos tergitos, o restante amarelado. Espermatecas duas, fortemente esclerotizadas e com quase o mesmo tamanho, uma arredondada, a outra leve-mente mais longa que larga, ambas com o ducto terminal fraca-mente esclerotizado.

Tipos. — Holótipo fêmea; parátipo, uma fêmea. Registrados sob os números 6904 e 6905.

Localidade tipo. — Brasil, Estado de S. Paulo, Campos do Jordão, XII. 1945 (J. Lane col.).

Palpomyia paulistensis, n. sp.

Comprimento do corpo 2,5 mm.; asa 2 mm.

Fêmea. — Cabeça: Palpo com o segundo segmento mais largo, o terceiro um pouco mais curto que o quarto. Antena com o toro castanho-claro, os segmentos com os seguintes comprimentos: III 100, IV a VII 64, VIII e IX 70, X 74, XI e XII 192, XIII 170, XIV 185, XV 220. Comprimento total dos segmentos III-X igual a 570; dos segmentos XI-XV igual a 959. Occipício enegrecido-brilhante.

Tórax: Mesonoto com o tubérculo grande, esbranquiçado e ponteagudo. Disco enegrecido-brilhante, revestido de pilosidade esbranquiçada e com esparsas cerdas implantadas em tubérculos enegrecidos. Escutelo enegrecido-brilhante e com seis cerdas marginais. Postnoto enegrecido-brilhante; as pleuras também enegrecidas e brilhantes.

Pernas: Coxa anterior amarelada, mais escura na base; coxas mediana e posterior castanho-avermelhadas. Par anterior com o fêmur amarelado na base, escuro no ápice, engrossado, i. é, com aproximadamente três vezes a grossura da tibia e munido de aproximadamente vinte espinhos irregularmente dispostos nos três quartos distais inferiores; articulação fêmuro-tibial mais escura; tibia levemente encurvada, amarelada salvo na base que é escurificada; tarsos com os três primeiros segmentos amarelados, um pouco mais escuros no ápice, o quarto e quinto escuros, o quinto inerme; garras, duas, com a metade do comprimento do quinto segmento. Par mediano. Fêmur e tibia amarelados salvo a articulação fêmuro-tibial que é um pouco mais escura; tarsos como no par anterior. Par posterior como o mediano porém a coloração escura se estendendo para o ápice do fêmur e a base da tibia; tarsos como no par anterior; basitarso com pequeno espinho basal. T. R. 2.

Asa hialina. Balancim com a haste clara e o capítulo enegrecido.

Abdômen: Tergitos castanho-claros. Esternitos com mancha enegrecida em IV, o restante amarelado. Cêrci amarelados. Espermatecas duas, a maior ovalada, o ducto distinto na base, a me-

nor quase arredondada. Existe também outra pequena espermateca aparentemente atrofiada.

Tipos. — Holótipo fêmea. Parátipos cinco fêmeas. Registrados sob os números 6912 a 6917. Temos mais dois parátipos a serem depositados em outras Instituições.

Palpomyia nigroflava, n. sp.

Comprimento do corpo 3,2 mm.; asa 3 mm.

Fêmea. — Cabeça: Palpo esbranquiçado, segundo segmento mais longo, terceiro e quarto do mesmo tamanho. Clípeo castanho-enegrecido, com esparsos pêlos longos. Antena com o toro amarelado, os segmentos basais amarelados com ápice escuro, os outros escuros; os segmentos com os seguintes comprimentos: III 100, IV 83, V a VII 75, VIII 83, IX 80, X 83, XI 283, XII 267, XIII 258, XIV 233, XV 325. Comprimento total dos segmentos III-X igual a 654; dos segmentos XI-XV igual a 1366. Occipício enegrecido-brilhante.

Tórax: Mesonoto com o tubérculo desenvolvido e enegrecido, o disco enegrecido-brilhante; revestido de discreta pilosidade branca. Escutelo da cor do mesonoto e com quatro cerdas marginais. Postnoto e pleuras enegrecido-brilhantes.

Pernas: Coxas anteriores amareladas, mais escuras na base, as medianas e posteriores castanho-amareladas, todas com pruinose esbranquiçada. Fêmures e tíbias amarelados salvo nas articulações fêmuro-tibiais e nos ápices das tíbias que são castanhos; no par mediano e posterior a extensão da coloração castanha é progressivamente maior. Fêmur anterior delgado e com três espinhos ínfero-apicais, os outros inermes. Tarsos com os basitarsos e segundo tarso anterior mais claros, os demais escuros. T. R. 2,2.

Asa enfuscada, em maior proporção anteriormente. Balancim com a haste esbranquiçada, o capítulo enegrecido.

Abdômen: Tergitos enegrecidos e brilhantes. Esternitos enegrecidos e opacos. Cêrci enegrecidos e brilhantes.

Tipo. — Holótipo fêmea. Registrado sob o número 6908.

Localidade tipo. — Brasil, Estado de S. Paulo, Campos do Jordão, XII. 1945 (J. Lane col.).

As espécies acima descritas podem ser enquadradas nos seguintes dicótomos da chave de Macfie (1939):

6. Tórax com tubérculo anterior 6a.
— Tórax sem tal tubérculo *tenuicrus* Kieffer
- 6a. Com mais de vinte espinhos no fêmur anterior 6b.
— Com menos de dez espinhos em tal fêmur *lutzi* n. sp.
- 6b. Fêmur anterior provido de aproximadamente trinta espinhos; escutelo amarelado *aculeata* Ingram e Macfie
— Fêmur anterior com cerca de vinte espinhos; escutelo enegrecido *barrettoi* n. sp.
9. Fêmur com os dois terços basais amarelados, o ápice mais escuro; tíbia amarelada mas com a base e ápice escuros; quinto segmento tarsal sem espinhos *oliveirai* n. sp.
- 12a. Mesonoto amarelado; escutelo enegrecido; fêmur anterior com cerca de vinte espinhos *nigroscutellata* n. sp.
— Mesonoto castanho-escuro; escutelo castanho-amarelado; fêmur anterior com cerca de nove espinhos *castanea* Macfie
- 12b. Tórax enegrecido 12c.
- 12c. Fêmur anterior com quinze ou vinte espinhos 12d.
— Fêmur anterior com três espinhos *nigroflava* n. sp.
- 12d. Quinto segmento tarsal inerte; abdômen castanho-claro *paulistensis* n. sp.
— Quinto segmento tarsal com espinhos; abdômen castanho-escuro *chilensis* Ingram e Macfie

Agradecimientos.

Desejamos consignar aqui os nossos agradecimentos aos Drs. M. P. Barretto, da Faculdade de Medicina da Universidade de S. Paulo, Petr Wygodzinsky, do Instituto de Experimentação Agrícola do Rio de Janeiro, S. J. Oliveira, da Geigy do Brasil S./A. e Messias Carrera, do Departamento de Zoologia da Secretaria de Agricultura do Estado de S. Paulo, pelo material que colocaram à nossa disposição.

Summary.

The author describes six new species of *Palpomyia* from Brasil, elects the allotypes of two others and gives the distribution of four known ones.

Bibliografia.

- Macfie, J. W. S., 1939, A report on a collection of Brazilian *Ceratopogonidae*. — Rev. Ent., 10 (1): 137-219, 24 figs.

Novos Mycetophilinae do Brasil (Diptera, Mycetophilidae).

Por J o h n L a n e, Departamento de Parasitologia, Faculdade de Higiene e Saúde Pública da Universidade de S. Paulo, Brasil

(Com 7 figuras)

Prosseguindo os nossos estudos sobre os *Mycetophilidae* do Brasil meridional, temos, ultimamente, nos dedicado com especial atenção à subfamília *Mycetophilinae*. Este trabalho é baseado numa coleção de 24 espécimens provenientes dos Estados do Rio de Janeiro, S. Paulo e Goiás.

Constatamos espécies pertencentes aos gêneros *Trichonta* e *Platurocypta* que, segundo nos consta, ainda não foram assinalados no Brasil. Neste trabalho descrevemos seis espécies novas e redescrevemos algumas já conhecidas. Delimitamos a subfamília *Mycetophilinae* segundo o critério adoptado por E d w a r d s (1924) e T o n n o i r (1929). Os termos morfológicos aqui usados obedecem à nomenclatura proposta pelos autores acima mencionados. Os números dos exemplares são os da coleção de entomologia do Departamento de Parasitologia e Higiene Rural da Faculdade de Higiene e Saúde Pública da Universidade de S. Paulo.

Trichonta brasiliانا, n. sp.

Comprimento do corpo 3,2 mm.; asa 2,6 mm.

F ê m e a. — Cabeça castanho-enegrecida, revestida de pilosidade esbranquiçada e disposta em fileiras regulares; cerdas oculares enegrecidas. Antena com o escapo uma e meia vezes o comprimento do toro, ambos revestidos de pilosidade dourada, o toro com cerdas enegrecidas; flagelo com o segmento III amarelado, os outros castanhos, arredondados, mais largos que longos, muito unidos e dando a esta estrutura aspecto porrecto; comprimento da antena cerca de três quartos do comprimento da coxa anterior. Palpo amarelado.

Tórax: Mesonoto castanho no meio, esbranquiçado nos lados, anteriormente uma área cuneiforme amarelada e brilhante; revestimento formado por pilosidade esbranquiçada e pequenas cerdas castanhas distribuídas pelo disco; a porção posterior com seis cerdas longas e horizontalmente dispostas, as internas menores. Escutelo tão largo quanto longo, semicircular, revestido de pilosidade esbranquiçada e com quatro cerdas marginais. Postnoto castanho escuro no meio e esbranquiçado nos lados. Pleuras castanhas excepto porções de alguns escleritos que são

esbranquiçadas e o pleurotergito que é anteriormente enegrecido; quetotaxia a seguinte: — pronoto e propleura fundidos e com seis cerdas; anepisternito com alguns pêlos esbranquiçados e esparsas cerdas curtas na porção póstero-superior; pteropleurito glabro; pleurotergito com seis cerdas na porção infero-distal.

Pernas: Coxas amareladas, a anterior com pilosidade esbranquiçada e longa e cerdas formando uma linha que ocupa os dois terços distais e avança pela base; coxa mediana e posterior com algumas cerdas distais, esta também revestida de pilosidade. Trocânteres mais escuros. Tíbias amareladas, a anterior e mediana com a margem posterior mais escura, a posterior com mancha baso-externa escura e o quinto distal enegrecido. Tíbias e tarsos escuros. Tíbia mediana com 7 cerdas dorsais, 8 externas, 2 ventrais e 5 pequenas internas; tíbia posterior com 10 cerdas dorsais, 8 externas, 4 pequenas ventrais e 6 pequenas internas.

Asa: (vide figura 1). Sem manchas. Pecíolo do *M* longo, isto é, com quase um terço do comprimento do ramo superior; ramo inferior com a nervura não alcançando a margem da asa; *r-m* em diagonal; forquilha de *Cu* bem aquém da de *R*, os ramos não alcançando a margem da asa; *Cu*₂ indo pouco além da forquilha; *An* rudimentar. Balancim amarelado.

Abdômen dorsalmente enegrecido e com faixas apicais esbranquiçadas, formadas pelo denso revestimento de escamas; ventralmente esbranquiçado, as cores separadas lateralmente em linha irregular.

M a c h o. — Semelhante à fêmea. Genitália: (figura 2). Bastistilos fundidos basalmente. Dististilo subdividido e como na figura 2. Décimo esternito formado por uma peça pouco esclerotizada, subtriangular e pouco pilosa. Nono tergito com os lobos fundido, chanfrado medianamente e fortemente cerdoso.

Tipos. — Holótipo fêmea. Alótipo macho. Parátipos três machos e uma fêmea. Registrados sob os números 6958 a 6961. Dois parátipos a serem depositados em outras Instituições.

Localidade tipo. — Holótipo Brasil, Estado de S. Paulo, Capital, Ipiranga, V. 1943 (L. Travassos Fº col.); alótipo macho, Juquiá, V. 1947 (E. Rabelo col.); um parátipo Capital, Cidade Jardim, I. 1945 (M. P. Barreto col.); um parátipo do Estado de Goiás, Corumbá, XI. 1945 (M. P. Barreto col.); dois parátipos do Estado do Rio de Janeiro, D. F. e Itatiaia, X. 1945 (J. Lane e M. P. Barreto col.).

Novos Mycetophilinae do Brasil (Diptera, Mycetophilidae).

Por J o h n L a n e, Departamento de Parasitologia, Faculdade de Higiene e Saúde Pública da Universidade de S. Paulo, Brasil

(Com 7 figuras)

Prosseguindo os nossos estudos sobre os *Mycetophilidae* do Brasil meridional, temos, ultimamente, nos dedicado com especial atenção à subfamília *Mycetophilinae*. Este trabalho é baseado numa coleção de 24 espécimens provenientes dos Estados do Rio de Janeiro, S. Paulo e Goiás.

Constatamos espécies pertencentes aos gêneros *Trichonta* e *Platurocypta* que, segundo nos consta, ainda não foram assinalados no Brasil. Neste trabalho descrevemos seis espécies novas e redescrevemos algumas já conhecidas. Delimitamos a subfamília *Mycetophilinae* segundo o critério adoptado por E d w a r d s (1924) e T o n n o i r (1929). Os termos morfológicos aqui usados obedecem à nomenclatura proposta pelos autores acima mencionados. Os números dos exemplares são os da coleção de entomologia do Departamento de Parasitologia e Higiene Rural da Faculdade de Higiene e Saúde Pública da Universidade de S. Paulo.

Trichonta brasiliانا, n. sp.

Comprimento do corpo 3,2 mm.; asa 2,6 mm.

Fê m e a. — Cabeça castanho-enegrecida, revestida de pilosidade esbranquiçada e disposta em fileiras regulares; cerdas oculares enegrecidas. Antena com o escapo uma e meia vezes o comprimento do toro, ambos revestidos de pilosidade dourada, o toro com cerdas enegrecidas; flagelo com o segmento III amarelado, os outros castanhos, arredondados, mais largos que longos, muito unidos e dando a esta estrutura aspecto porrecto; comprimento da antena cerca de três quartos do comprimento da coxa anterior. Palpo amarelado.

Tórax: Mesonoto castanho no meio, esbranquiçado nos lados, anteriormente uma área cuneiforme amarelada e brilhante; revestimento formado por pilosidade esbranquiçada e pequenas cerdas castanhas distribuídas pelo disco; a porção posterior com seis cerdas longas e horizontalmente dispostas, as internas menores. Escutelo tão largo quanto longo, semicircular, revestido de pilosidade esbranquiçada e com quatro cerdas marginais. Postnoto castanho escuro no meio e esbranquiçado nos lados. Pleuras castanhas excepto porções de alguns escleritos que são

esbranquiçadas e o pleurotergito que é anteriormente enegrecido; quetotaxia a seguinte: — pronoto e propleura fundidos e com seis cerdas; anepisternito com alguns pêlos esbranquiçados e esparsas cerdas curtas na porção póstero-superior; pteropleurito glabro; pleurotergito com seis cerdas na porção infero-distal.

Pernas: Coxas amareladas, a anterior com pilosidade esbranquiçada e longa e cerdas formando uma linha que ocupa os dois terços distais e avança pela base; coxa mediana e posterior com algumas cerdas distais, esta também revestida de pilosidade. Trocânteres mais escuros. Tíbias amareladas, a anterior e mediana com a margem posterior mais escura, a posterior com mancha baso-externa escura e o quinto distal enegrecido. Tíbias e tarsos escuros. Tibia mediana com 7 cerdas dorsais, 8 externas, 2 ventrais e 5 pequenas internas; tibia posterior com 10 cerdas dorsais, 8 externas, 4 pequenas ventrais e 6 pequenas internas.

Asa: (vide figura 1). Sem manchas. Pecíolo do *M* longo, isto é, com quase um terço do comprimento do ramo superior; ramo inferior com a nervura não alcançando a margem da asa; *r-m* em diagonal; forquilha de *Cu* bem aquém da de *R*, os ramos não alcançando a margem da asa; *Cu*₂ indo pouco além da forquilha; *An* rudimentar. Balancim amarelado.

Abdômen dorsalmente enegrecido e com faixas apicais esbranquiçadas, formadas pelo denso revestimento de escamas; ventralmente esbranquiçado, as cores separadas lateralmente em linha irregular.

M a c h o. — Semelhante à fêmea. Genitália: (figura 2). Bastilos fundidos basalmente. Dististilo subdividido e como na figura 2. Décimo esternito formado por uma peça pouco esclerotizada, subtriangular e pouco pilosa. Nono tergito com os lobos fundido, chanfrado medianamente e fortemente cerdoso.

Tipos. — Holótipo fêmea. Alótipo macho. Parátipos três machos e uma fêmea. Registrados sob os números 6958 a 6961. Dois parátipos a serem depositados em outras Instituições.

Localidade tipo. — Holótipo Brasil, Estado de S. Paulo, Capital, Ipiranga, V. 1943 (L. Travassos F^o col.); alótipo macho, Juquiá, V. 1947 (E. Rabelo col.); um parátipo Capital, Cidade Jardim, I. 1945 (M. P. Barreto col.); um parátipo do Estado de Goiás, Corumbá, XI. 1945 (M. P. Barreto col.); dois parátipos do Estado do Rio de Janeiro, D. F. e Itatiaia, X. 1945 (J. Lane e M. P. Barreto col.).

Epicrypta oedipus Edwards, 1934.

1934, Edwards, Rev. Ent., 4: 365.

Temos uma fêmea proveniente do Estado de S. Paulo, Cajuru, II. 1947 (M. P. Barreto col.).

Platurocypta neotropicalis, n. sp.

Comprimento do corpo 2,3 mm.; asa 2,2 mm.

Fêmea. — Cabeça enegrecida-brilhante; revestida de pilosidade amarelada. Antena com o escapo e toro pequenos, castanho-amarelados, os primeiros quatro segmentos flagelares mais claros, os demais enegrecidos; flagelo adelgado para o ápice e com uma vez e dois terços o comprimento da coxa anterior. Palpo castanho-amarelado.

Tórax enegrecido-brilhante. Mesonoto com pequena área esbranquiçada adiante e ao lado do escutelo; revestido de pilosidade acobreada e com seis cerdas prescutelares horizontalmente dispostas. Escutelo com a cor e revestimento do mesonoto e munido de quatro cerdas marginais. Postnoto enegrecido. Pleuras castanho-enegrecidas; pronoto com as divisões fundidas, com duas cerdas e pilosidade; anepisternito maior que os outros escleritos reunidos, com três cerdas posteriores e recoberto de pilosidade; pteropleurito com três cerdas, o pleurotergito com quatro ou cinco.

Pernas: Coxas, trocânteres e fêmures amarelados; coxa anterior com cerdas nos dois terços distais da margem externa e revestida de pilosidade esbranquiçada. Tibias e tarsos mais escuros. Tibia mediana com 6 cerdas dorsais, 2 ventrais, 2 externas e 1 interna, além de 2 cerdas no ápice, dorsalmente dispostas. Tibia posterior com aproximadamente 10 cerdas dorsais dispostas em duas fileiras.

Asa: Pecíolo de *M* muito curto e do comprimento de *r-m*; forquilha de *Cu* aquém da forquilha de *M*. Balancim amarelado.

Abdômen enegrecido salvo o último segmento que é amarelado; todos os segmentos densamente revestidos de longa pilosidade acobreada. Cêrci (vide figura 3) com dois segmentos.

M a c h o. — Desconhecido.

Tipo. — Holótipo fêmea. Registrado sob o número 6963.

Localidade tipo. — Brasília, Estado de S. Paulo, Cajuru, II. 1947 (M. P. Barreto col.).

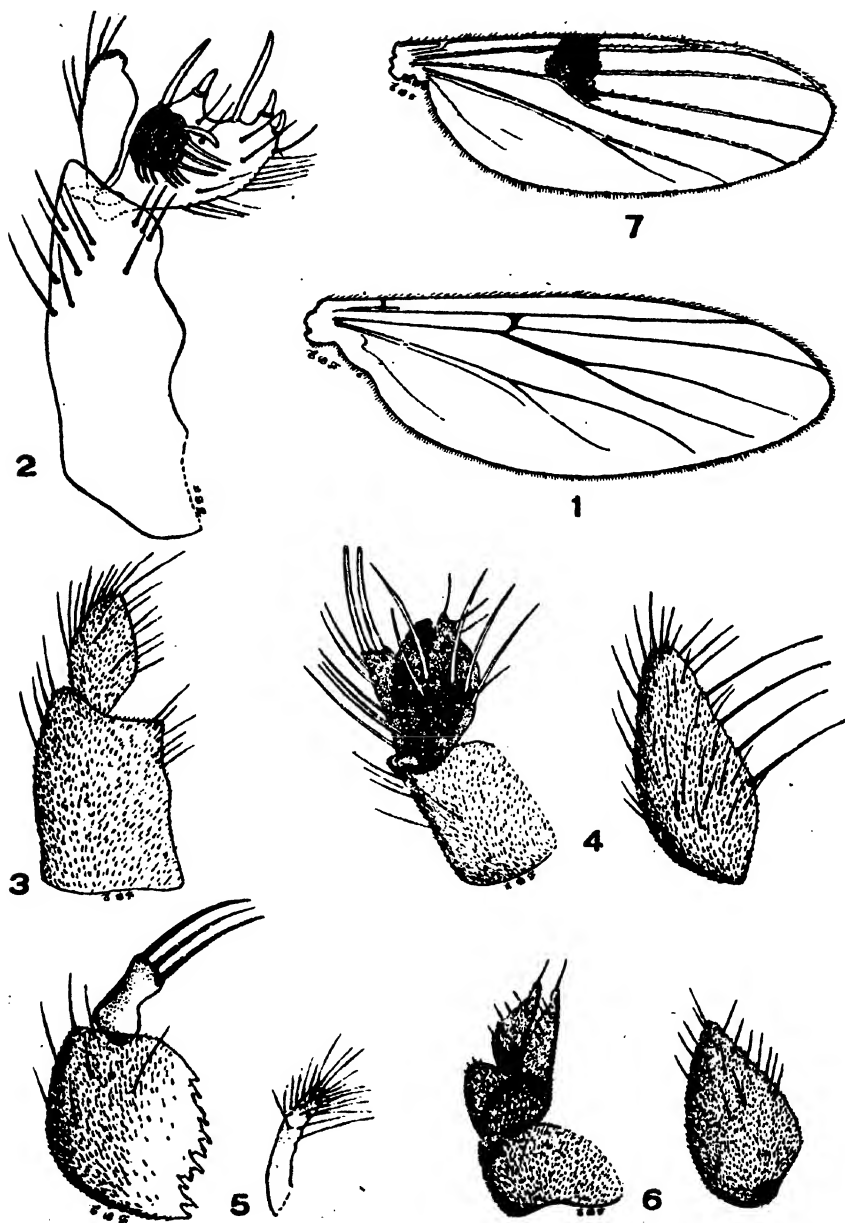


Fig. 1. *Trichonta brasillana* Edw., asa. — Fig. 2. Idem, genitália: basistilo e dististilo. — Fig. 3. *Platurocypta neotropicalis* n. sp., cerci. — Fig. 4. *Delopsis brasillana* Edwards, genitália: basistilo e dististilo. — Fig. 5. *Delopsis brasillensis* Enderlein, genitália: basistilo e dististilo. — Fig. 6. *Delopsis wygodzinskyl* n. sp., genitália: basistilo e dististilo. — Fig. 7. Idem, asa.

Sceptonia longicornis Enderlein, 1911.

1911, Enderlein, Stet. Ent. Zeitg., 72: 183.

Aproveitamos esta ocasião para descrever um exemplar fêmea, desta espécie, e que se encontra na nossa coleção.

Comprimento do corpo 3 mm.; asa 3 mm.

Fêmea. — Cabeça enegrecida-brilhante revestida de pilosidade amarelada. Antena com o escapo, toro e parte do primeiro segmento flagelar amarelados, o restante enegrecido; comprimento da antena uma e meia vezes o da coxa anterior. Palpo amarelado.

Tórax enegrecido-brilhante. Mesonoto revestido de pilosidade amarelada e com seis cerdas prescutelares horizontalmente dispostas. Escutelo alongado, subtriangular e com quatro cerdas marginais. Postnoto enegrecido e opaco. Pleuras com o anepisternito maior que todos os outros escleritos, com cerdas posteriores além de pilosidade; pteropleurito com duas cerdas; pleurotergito com algumas cerdas posteriores.

Pernas: Coxas, trocânteres e fêmures amarelados salvo o posterior que é enegrecido no terço apical; tíbias e tarsos mais escuros. Tibia mediana com 4 cerdas dorsais, 2 externas e 1 interna. Tibia posterior com 3 cerdas dorsais e 8 externas.

Asa: Com mancha castanho-escura e arredondada que, da margem inferior de R_1 vai pouco abaixo da forquilha de M e envolve $r-m$ e o pecíolo de M , o restante amarelado. Pecíolo de M pouco mais longo que $r-m$. Cu simples. Balancim amarelado.

Abdômen enegrecido em cima, mais claro em baixo; último segmento amarelado.

Proveniência do material estudado. — Uma fêmea, registrada sob o número 6964 de Brasil, Estado de S. Paulo, Cantareira, VIII. 1945 (J. Lane col.).

Zygomia brasiliانا, n. sp.

Comprimento do corpo 2,2 mm.; asa 2,2 mm.

Fêmea. — Cabeça castanho-escura, densamente revestida de pilosidade dourada e regularmente disposta. Antena com o escapo uma e meia vezes o comprimento do toro, estes e o primeiro segmento flagelar amarelados, o restante castanho escuro; comprimento da antena uma vez e dois terços o da coxa anterior. Palpo amarelado.

Tórax: Mesonoto com três estrias, uma anterior e duas nos lados, são elas castanhas, com as margens mais escuras, o res-

tante do disco esbranquiçado; revestimento formado por cerdosidade castanho-enegrecida e pilosidade esparsa e dourada. Escutelo baso-lateralmente manchado de castanho-escuro em continuação à marcação marginal das estrias do mesonoto, o restante amarelado, cerdas marginais quatro. Postnoto castanho no meio, em cima e nos lados amarelado. Pleuras amareladas, alguns escleritos mais escuros; pronoto com a divisão posterior com três cerdas longas e outras menores, o anterior com quatro cerdas longas; anepisternito com uma fileira posterior de quatro cerdas longas, outra transversal de quatro mais curtas, além de pilosidade clara que recobre o resto do esclerito; pteropleurito com quatro cerdas; pleurotergito com algumas cerdas pequenas.

Pernas: Coxas amareladas; trocânteres mais escuros; fêmures amarelados, escurecidos na margem anterior, principalmente os posteriores; tíbias e tarsos mais escuros; tíbia mediana com 5 cerdas dorsais, 2 externas, 3 ventrais e 2 internas; tíbia posterior com 5 cerdas dorsais, 7 externas e algumas cerdas no ápice.

Asa: hialina. Pecíolo de *M* pouco mais longo que *r-m* que está diagonalmente disposta; *Cu* simples. Balancim amarelado.

Abdômen com os tergitos I-III castanho-escuros, IV-V com faixas basais amareladas, o restante castanho-escuro. Cêrci com dois segmentos, o apical apreciavelmente mais longo que o basal.

M a c h o. — Desconhecido.

Tipo. — Holótipo uma fêmea. Registrada sob o número 6965.

Localidade tipo. — Brasil, Estado de S. Paulo, Campos do Jordão, XII. 1945 (J. Lane col.).

Delopsis barrettoi, n. sp.

Comprimento do corpo 2,3 mm.; asa 2,3 mm.

Fêmea. — Cabeça castanha excepto estreita e discreta estria longitudinal mais escura; revestida de pilosidade dourada. Antena com o escapo castanho-escuro, o toro amarelado; flagelo com o terceiro segmento amarelado na base, o restante do flagelo bem como os demais segmentos, enegrecido. Palpo amarelado.

Tórax: Mesonoto castanho no centro, esbranquiçado nos lados, as duas regiões delimitadas por um desenho enegrecido e sinuoso; existem também, duas manchas escuras, acima da região pré-escutelar, e, esta com extensa mancha enegrecida que se estende ao escutelo; revestimento formado por pilosidade amarelada, a região pré-escutelar com quatro longas cerdas horizontalmente dispostas. Escutelo enegrecido na base (em continuação à

marcação pré-escutelar), castanho-escuro no ápice, o restante esbranquiçado. Postnoto amarelado. Pleuras castanhas, as margens mais escuras; pronoto com três cerdas longas; anepisternito com quatro; pteropleurito com duas; pleurotergito com algumas cerdas curtas.

Pernas: Coxas amareladas; coxa anterior com cerdas do meio para o ápice. Trocânteres e fêmures amarelados mas mais escuros. Tíbias e tarsos escuros. Tibia mediana com 5 cerdas dorsais, 3 externas e 2 ventrais. Tibia posterior com 6 dorsais e 7 externas.

Asa hialina e sem manchas. Pecíolo do *M* curto, a forquilha além de *r-m*; forquilha de *Cu* além da de *R*. Balancim com a haste amarelada e o capítulo castanho-escuro.

Abdômen castanho-escuro, os tergitos com faixas apicais mais claras e ventralmente amarelados. Cêrci com os segmentos basais grandes e largos, os distais pequenos, i. é, com pouco mais da metade do comprimento dos basais e delgados.

M a c h o. — Desconhecido.

Tipos. — Holótipo fêmea; parátipos duas fêmeas. Registrados sob os números 6966 a 6968.

Localidade tipo. — Brasil, Estado de S. Paulo, Cajuru, II. 1947. (M. P. Barreto col.).

O nome desta espécie é dado em homenagem ao seu colecionador o Dr. M. P. Barreto da Faculdade de Medicina da Universidade de S. Paulo. Além de outros característicos a coloração do mesonoto, escutelo, balancins e abdômen separam esta espécie das demais do gênero.

Delopsis brasiliiana - Edwards, 1932.

1932, Edwards, Rev. Ent., 2 (2): 147.

Edwards baseou a sua descrição em dois exemplares. Examinamos o parátipo que está depositado no Instituto Biológico de S. Paulo. A nossa série conta com seis exemplares (três machos e três fêmeas) que correspondem a esta espécie. Notamos, no entanto, variação na marcação do mesonoto que é brilhante e pontilhado, anteriormente amarelado, posteriormente possuindo duas grandes manchas negras que podem se fundir em alguns exemplares. A marcação do abdômen também sofre grande redução em alguns exemplares. Elegemos um dos machos o alótipo desta espécie.

Macho. — Com os caracteres e variabilidade da fêmea. Genitália: (vide figura 4). Basistilo curto, com os lobos fundidos e quase tão largo quanto longo. Dististilo mais longo que o basistilo, com uma grande cerda (em um exemplar outra menor) implantada em um tubérculo saliente no ápice; a margem interna com cerdas encurvadas; lobos internos mais longos que os internos e com as cerdas internas desenvolvidas. Demais estruturas complexas deixando entrever, no ápice, duas protuberâncias digitiformes e inermes.

Tipos. — Alótipo, um macho. Registrado sob o número 6969.

Localidade do alótipo. — Brasil, Estado de Goiás, Corumbá, XI. 1945 (M. P. Barreto col.).

Proveniência do material estudado. — Brasil, Estado de Goiás, Corumbá, XI. 1945 (M. P. Barreto col.), 1 fêmea; Estado de S. Paulo, Cantareira, VIII. 1945 (J. Lane col.), 1 macho; Estado de S. Paulo, Juquiá, IX. 1945 (J. Lane col.), 1 macho e 1 fêmea; Estado de S. Paulo, Cajuru, II. 1947 (M. P. Barreto col.), 1 fêmea.

Delopsis brasiliensis (Enderlein, 1911).

Mycetophila brasiliensis Enderlein, 1911, Stet. Ent. Zeltg., 72: 171.

Esta espécie foi descrita de um macho. O nosso exemplar concorda, em geral, com a descrição. Aproveitamos esta ocasião para descrevê-lo e figurar genitália.

Macho. — Cabeça amarelada-brilhante; revestida de pilosidade dourada. Antena com o escapo uma e meia vezes o comprimento do toro, ambos amarelados; flagelo com os terceiro a oitavo segmentos mais claros na base e escuros para o ápice, os demais totalmente escuros; comprimento da antena uma e meia vezes o da coxa anterior. Palpo amarelado.

Tórax: Mesonoto com tegumento amarelo-avermelhado salvo grande mancha enegrecida que, de adiante da raiz da asa, vai até a base do escutelo e é mais larga que longa; revestimento formado por longa pilosidade amarelada; cerdas pré-escutelares seis, horizontalmente dispostas. Escutelo avermelhado, com quatro cerdas marginais. Postnoto da cor do escutelo. Pleuras avermelhadas salvo o pteropleurito e o pleurotergito que possuem áreas mais escuras; pronoto com uma fileira de quatro longas cerdas além de pilosidade; anepisternito com uma fileira de quatro cerdas e

longos pêlos amarelados; pteropleurito com outra fileira de quatro cerdas; pleurotergito com algumas cerdas.

Pernas: Coxas amareladas, a anterior com uma mancha de cerdas distais, a mediana com duas ou três, a posterior com uma cerda distal. Trocânteres mais escuros. Fêmures amarelados, o posterior enegrecido no ápice. Tíbias amareladas, a posterior enegrecida na base. Tibia mediana com 9 cerdas dorsais em duas fileiras, 4 externas, 3 ventrais e 1 interna; tibia posterior com 10 cerdas dorsais em duas fileiras e 7 ou 8 externas e irregularmente dispostas.

Asa sem manchas mas levemente amarelada. Pecíolo do *M* curto, a forquilha à altura de *r-m*; forquilha de *Cu* à altura da de *M*. Balancim amarelo-claro.

Abdômen dorsalmente enegrecido excepto III na base e ápice, IV na base e no ápice em maior proporção, V na base e VI que é totalmente avermelhado.

Genitália: (vide figura 5). Basistilo curto, largo, os lobos fundidos. Dististilo subdividido, uma parte cerdosa, a outra digitiforme e originando três grandes cerdas apicais; segundo lobo subcilíndrico e fortemente cerdoso.

Fê m e a. — Desconhecida.

Proveniência do material estudado. — Brasil, Estado de S. Paulo, Juquiá, V. 1947 (J. Lane col.).

Delopsis goianensis, n. sp.

Comprimento do corpo 3,3 mm.; asa 3,2 mm.

Fê m e a. — Cabeça amarelo-avermelhada, brilhante, revestida de pilosidade dessa cor. Antena com o escapo, toro e primeiros três ou quatro segmentos amarelados, o restante escuro; comprimento da antena uma e um quarto vezes o da coxa anterior. Palpo avermelhado.

Tórax avermelhado. Mesonoto com o disco brilhante e mancha subtriangular enegrecida no meio da região pré-escutelar, esta com seis cerdas horizontalmente dispostas; revestimento formado por cerdas douradas. Escutelo avermelhado e com quatro cerdas marginais. Pleuras avermelhadas; pronoto com duas ou três cerdas longas no posterior além de outras muito discretas e espalhadas pelo esclerito; anepisternito com quatro cerdas além de outras muito discretas e também espalhadas pelo esclerito; pteropleurito com quatro cerdas.

Pernas: Coxas castanho-avermelhadas; fêmures da cor das coxas salvo o posterior que têm a extremidade enegrecida. Tíbias amareladas, a posterior enegrecida na base, os tarsos gradualmente mais escuros. Tibia mediana com 12 cerdas dorsais em duas fileiras, 4 externas, 3 ventrais e 1 interna; tibia posterior com 11 dorsais em duas fileiras e 6 cerdas externas.

Asa de tonalidade amarelada mas sem manchas. *R-m* em diagonal; pecíolo de *M* mais curto que *r-m*; forquilha de *Cu* pouco aquém da de *M*. Balancim amarelo-avermelhado.

Abdômen castanho, os lados mais claros; densamente revestido por pilosidade dourado-avermelhada.

M a c h o. — Desconhecido.

Tipos. — Holótipo uma fêmea. Registrada sob o número 6973.

Localidade tipo. — Brasil, Estado de Goiás, Corumbá, XI. 1946 (M. P. Barreto col.).

A espécie acima se aproxima de *D. brasiliensis* da qual pode ser separada pelo tamanho da mancha pré-escutelar, coloração do abdômen e tonalidade geral avermelhada, além de outros característicos.

Delopsis wygodzinskyi, n. sp.

Comprimento do corpo 2 mm.; asa 2 mm.

M a c h o. — Cabeça castanho-acinzentada, a pilosidade castanha. Antena com o escapo e toro alongados, castanho-acinzentados, o flagelo enegrecido; comprimento da antena pouco maior que o da coxa anterior. Palpo castanho-escuro.

Tórax: Mesonoto castanho, as margens acinzentadas; densamente revestido de pilosidade clara e cerdasidade escura; cerdas prescutelares quatro, além de algumas cerdas longas. Escutelo um pouco mais escuro que o mesonoto. Postnoto castanho-escuro. Pleuras castanho-escuras; pronoto com três cerdas em fileira; anepisternito com uma fileira de quatro cerdas longas além de outras pequenas e esparsas; pteropleurito com uma fileira de três; pleurotergito com algumas cerdas.

Pernas: Coxas amarelo-esbranquiçadas. Fêmures amarelo-esbranquiçados. Trocânteres, tíbias e tarsos escuros. Tibia mediana com 5 cerdas dorsais, 2 externas, 1 interna e 1 ventral; tibia posterior com 3 cerdas dorsais muito longas além de 2 ou 3 pequenas e 6 externas.

Asa (vide figura 7) com mancha mediana que vai desde a nervura costal até a forquilha de *M*, para a base amarelada e no

ápice escurecida. Peciolo de *M* muito curto, a forquilha pouco além de *r-m*; forquilha de *Cu* bem além da de *M*, o ramo inferior não alcançando a margem da asa. Balancim com a haste esbranquiçada e o capítulo enegrecido.

Abdômen enegrecido, os segmentos III a VI com estreitas faixas distais e os segmentos genitais amarelados.

Genitália: (vide figura 6). Basistilo com os lobos fundidos e mais largos que longos. Dististilo subdividido em quatro lobos alongados e terminados em uma cerda longa; segundo lobo muito longo e adelgado para o ápice.

Fêmea. — Desconhecida.

Tipo. — Holótipo macho. Registrado sob o número 6974.

Localidade tipo. — Brasil, Estado do Rio de Janeiro (estrada Rio-S. Paulo, km. 47), II. 1947 (Petr Wygodzinsky col.).

Esta espécie é dedicada ao seu colecionador o Dr. Petr Wygodzinsky do Instituto de Experimentação Agrícola do Rio de Janeiro. Separa-se das demais espécies do gênero, além de outros caracteres, pela mancha da asa que alcança a nervura costal.

Agradecimentos.

Desejamos agradecer o material que foi posto à nossa disposição pelos Drs. M. P. Barreto da Faculdade de Medicina da Universidade de S. Paulo e Petr Wygodzinsky do Instituto de Experimentação Agrícola do Rio de Janeiro. Este trabalho foi ilustrado pelo Sr. E. B. Ferraz.

Summary.

The author describes the following new species: — *Trichonta brasiliiana*, *Platurocypta neotropicalis*, *Zygomyia brasiliiana*, *Delopsis barrettoi*, *wygodzinskyi* and *goianensis* n. spp. The allotype of *Delopsis brasiliiana* Edwards, 1932 is selected. *Sceptonia longicornis* Enderlein, 1911 and *Delopsis brasiliensis* (Enderlein, 1911) are described. *Epicypta oedipus* Edwards, 1934 is found to extend its distribution to Brasil.

El Género de los Nombres Científicos.

Por Richard E. Blackwelder, U. S. National Museum.

Al traducir este artículo¹ nos ha movido el deseo de hacer una obra provechosa para los entomólogos sudamericanos que no dominan el idioma inglés, al mismo tiempo que difundíamos un opúsculo de la mayor utilidad. Agradecemos al Dr. Blackwelder su autorización para publicar esta traducción.

R. G. Webster Kay, Montevideo-Uruguay.

Los nombres científicos de los animales, de acuerdo con las Reglas Internacionales de Nomenclatura Zoológica, deben ser palabras que sean latinas ó latinizadas, ó que sean tratadas y consideradas como tales, en el caso que no sean de origen clásico. Tanto los nombres genéricos como los específicos deben ser formados de acuerdo con los principios de la gramática latina y tener por regla general terminaciones latinas. Los nombres específicos deben llevar la apropiada relación modificante para con el nombre genérico, pudiendo tener para este propósito una terminación variable. Por ejemplo, los adjetivos deben concordar en género con el nombre genérico, los sustantivos en aposición deben estar en nominativo y los sustantivos posesivos deben estar en genitivo.

Nuestro Código Zoológico especifica estos principios y algunos otros, pero en general deja la responsabilidad al estudioso, de saber y aplicar la gramática latina.

La mayor parte de las investigaciones taxonómicas han sido llevadas a cabo por personas de cierta educación, y en el pasado sobre todo de una educación clásica. Un profundo conocimiento del latín y del griego era considerado una necesidad en cualquiera educación y casi todos los taxonomistas de la generación pasada ó de las anteriores, tenían un buen conocimiento práctico de los principios y de los vocabularios de estos idiomas. Sin embargo, en nuestros días le es muy posible al estudiante, alcanzar las más altas gradas de nuestra educación, sin el conocimiento de estas lenguas, y de hecho muy pocos estudiantes reciben una enseñanza completa de alguna de ellas. En consecuencia, a los taxonomistas modernos se les ha presentado una creciente dificultad para aplicar con uniformidad las reglas latinas, que deben gobernar sus acciones en la elección y formación de los nombres

¹) Publicación original: Blackwelder, Richard E., The gender of scientific names in zoology. — Journal of the Washington Academy of Sciences. Vol. 31, N.º 4, April 15, 1941, pp. 135-140.

y en el uso de las terminaciones apropiadas. Y esta predisposición ha tenido un efecto en el número de faltas cometidas por las personas que hacen uso de los nombres zoológicos.

Quizás la dificultad más común de esta cuestión, es saber qué terminación se usará, cuando un nombre específico es transferido de género. Por ejemplo: *Cylindropsis polita* es transferida a *Osorius* y debe ser cambiado a *Osorius politus*, desde que *polita* es un adjetivo y debe concordar en género con el nombre genérico, que es un nombre. Si el nombre específico fuera *rufipennis*, no cambiaría, desde que el masculino y el femenino tienen la misma terminación en esta declinación. Si el nombre específico fuera *ajax*, no cambiaría, pues es un sustantivo y estos no requieren concordar en género con el nombre genérico. Otros casos pueden no ser tan simples como éste, como en el caso de *Venus*, que a pesar de su terminación masculina, es femenina y en combinaciones tales como: *Tenaspis angulosa* (3a. decl. f. nombre y 1a. decl. adjetivo), *Tenaspis angularis* (3a. decl. f. nombre y 3a. decl. adjetivo), *Eros aurora* (3a. decl. m. nombre y 1a. decl. f. nombre en aposición), *Erotides hebes* (3a. decl. f. nombre y 3a. decl. f. nombre en aposición), *Sphex latus* (3a. decl. m. nombre y 2a. decl. m. adjetivo), *Microps fungi* (3a. decl. f. nombre y 2a. decl. m. nombre posesivo), *Microps minor* (3a. decl. f. nombre y adjetivo comparativo de 3a. decl.).

Una persona que no esté familiarizada con cada una de las declinaciones latinas, frecuentemente se encuentra desorientada con respecto al cambio que debe hacer en la terminación. Por suerte una gran parte de los nombres terminan en los familiares *us*, *a*, *um* y más aun en *is*, *is*, *e*. Pero aunque uno mismo esté al corriente con estos; qué ocurre con los *ger*, *gera*, *gerum* y *ger*, *gra*, *grum*, y los *as*, *es*, *os*, *ps*, *rs*, *or*, *x*, etc., que nunca cambian, y los *a*, *e*, *m*, *is*, etc., que algunas veces cambian y otras no, cuando el género del nombre genérico cambia?

Hay aun un número considerable de nombres que contravienen las reglas latinas en razón del género inherente a su significado. *Venus* lleva nombres específicos femeninos y *Adonis* masculinos, como excepción al género de las palabras que así terminan. Muchas palabras terminadas en *a* que derivan del griego, como *Conosoma* y *Strigoderma* retienen el género neutro que tenían en esa lengua. No hay modo de reconocer estas palabras por sí mismas, uno debe saber por anticipado cómo tienen que ser usadas.

Como muchos de los entomólogos jóvenes, encontré cre-

ciente dificultad en estos asuntos, por carecer de conocimientos suficientes de la gramática del latín y de su vocabulario. Encontré que hay una fuerte tendencia a dejar estos requerimientos y usar simplemente y siempre, la exacta forma original del nombre específico, sin otras consideraciones. Creo que éste será el resultado, si continuamos basando nuestro proceder en las reglas gramaticales de una lengua no bien conocida por todas las personas que la emplean, pero también creo que será esto una desgracia, la que puede ser prevenida mediante el uso de unas simples reglas.

En los escritos del Col. Thos. L. Casey² acerté con una sugestión que parece ofrecer la esperanza de una mejor solución. El Col. Casey arguye así:³

“Como las palabras genéricas y específicas son meros símbolos para la designación de una especie, parece deseable que ellas se aparten lo más posible de las excepciones de las reglas generales de la gramática, y que a este respecto por lo menos sean tratadas, en abstracto, como meros agregados de letras. Las reglas del género, deben ser uniformes, de tal manera que los símbolos genéricos terminados de cierta manera, necesiten un género invariable y definido en el símbolo específico”.

“El único camino que queda, por lo tanto, es considerar al nombre genérico como una simple combinación armoniosa de letras, con forma latina, construido sin referencia exacta a la correcta ortografía de la lengua del cual puede derivar; sea griego, latín ó un idioma indígena americano y sujeto a reglas constantes de género, que deben ser independientes del capricho lingüístico. La palabra puede ó no tener significado en la lengua de la cual sea tomada, pero en todo caso, el significado tiene muy poca importancia”.

“Un intento a la uniformidad, que involucre la supresión de las reglas de la ortografía, hecho con un espíritu similar al que ha provocado las observaciones arriba citadas, se ha puesto en uso general recientemente. Aludo a la creciente costumbre de escribir todos los nombres específicos, ya sean propios ó comunes, con la letra inicial minúscula. Todas las reglas como ésta, que tienen por objeto alcanzar la simplicidad y uniformidad de la nomenclatura científica, son sin duda muy convenientes”.

El Col. Casey propone que los nombres genéricos ter-

²) Uno de los más estudiosos y prolíficos escritores de la generación pasada.

³) Ann. New York Acad. Sci. 5: 307-308. 1890.

minados en *as, es, os, us, r* y *o*, sean masculinos, que *a, is, s* precedidos por una consonante, *ys, e,* y *x* sean femeninos, y que *m,* y *n* sean neutros. Estos serían invariables, la terminación determinaría el género del nombre. Al usar la regla anterior durante varios años, la he encontrado muy útil, pero he deseado tener una lista más comprensiva y también una ayuda similar, para determinar las terminaciones a usar con el nombre específico en cada caso. Formando listas de nombres y comparándolos con gramáticas latinas, he podido formar una tabla de terminaciones que parece hacer posible la determinación del sufijo apropiado en cualquier caso, de acuerdo con reglas fijas y con un minimum de molestia.

Los nombres genéricos formados por combinaciones arbitrarias de letras, pueden terminar en cualquier letra, como: *Anzac, Coati, Arrup, Biat,* y *Coendou*. Estos nombres parecen ser válidos de acuerdo con el artículo 3.º de las Reglas, pero su género no puede ser adivinado de improviso por ninguno, salvo el autor. De los nombres arriba mencionados, fueron en origen usados como masculinos: *Anzac, Arrup* y *Coendou*, y como femeninos: *Coati* y *Biat*. Apesar de que, bajo algunos aspectos hubiera sido correcto que el autor determinara el género del nombre; en tal caso esto hubiera llevado a confusión, puesto que todos los que hicieran uso de él, en el futuro, se verían en la necesidad de referirse al artículo original para determinar el género. Para evitar esto y reducir el asunto a una sola regla, que pueda ser aplicada al sistema arriba mencionado, lo siguiente ha sido compilado principalmente para usos latinos. Nombres genéricos terminados en *b, c, d, f, g, h, j, l, p, q, t, v, w,* ó *z* ó en *i, u,* ó *y*, deben ser considerados como neutros. Cuando combinamos esta regla con la lista del Col. Casey, tenemos la Tabla 1, en la cual están agrupadas todas las posibles terminaciones de los nombres genéricos, en suas correspondientes géneros. Permite determinar el género de cualquier nombre genérico mediante su terminación.

TABLA 1

Masculino	Femenino	Neutro
er, ir, or, os, us, ex.	a, e, as, es, is, s (precedida por una consonante), x (excepto ex).	b, c, d, f, g, h, i, j, k, l, m, n, o, p, q, ar, ur, t, u, v, w, y, z.

Para determinar la terminación apropiada del nombre específico, uno debe saber primero si es un sustantivo ó un ad-

jetivo. Las terminaciones de los sustantivos no pueden ser cambiadas bajo ninguna circunstancia, pero las terminaciones de los adjetivos generalmente deben ser cambiadas, si hay un cambio de género en el nombre genérico.

Los adjetivos solamente pueden terminar (en el singular⁴⁾, con las siguientes letras ó combinaciones: *a, e, um, er, is, us*.⁵ Los nombres terminados en estas letras serían adjetivos, pero ocasionalmente pueden ser sustantivos. Si uno no reconoce a un determinado nombre como adjetivo, se debe consultar un diccionario. Sin embargo, si no se puede demostrar que tal nombre sea un sustantivo, lo mejor es tratarlo como si fuera un adjetivo y cambiar su terminación para concordarlo con el nombre genérico. Por ejemplo: el nombre *nigrita* ha sido usado unas veces como sustantivo y otras como adjetivo. La derivación del nombre es discutible, pero se evita mucha confusión tratándolo como adjetivo.

En la Tabla 2 se ha hecho un intento para indicar el género de toda posible terminación de nombre específico, que sea adjetivo (como aquí se restringe) y para mostrar las terminaciones apropiadas de este nombre en otros géneros. El género de cualquiera terminación en las primeras columnas, es indicado por la columna del género en que aparecen las letras en bastardilla.

4) Desde que las Reglas especifican que los nombres genéricos deben estar en nominativo singular, los adjetivos modificativos deben también estar en singular.

5) En latín unos pocos adjetivos con declinaciones, en el singular, imperfectas ó excepcionales, pueden terminar en combinaciones como: *i, am, em, ar, or, as, es, us, os, ps, y rs*. Excepción sea hecha de los adjetivos comparativos (*or, ar, us*); estos generalmente tienen la misma forma en todos los géneros y por lo tanto son tratados aquí más bien como sustantivos que como adjetivos. Las palabras terminadas en *x* no se las puede llamar propiamente irregulares ó imperfectas, pero desde que sus terminaciones son iguales en todos los géneros, pueden ser omitidas en la tabla y tratadas con los sustantivos.

TABLA 2

Terminaciones				Género		Ejemplo
Letra final	Precedida por	(precedida por)	(precedida por)	Masc.	Fem.	
a	r (cualquier otra)			er	(e)ra	rubra
a	r			us	a	rugosa
e	u			er	is	acre
m	u			er	(e)ra	rubrum
m	e	r (cualquier otra)		us	a	rugosum
r	e	ch		er	ra	pulcher
r	e	n, p, s.	a, e ³ , i, o, u.	er	era	tener
r	e	(cualquier otra)	a ² , e, o, u.	er	ra	sacer
r	e	(cualquier otra)	i ¹ , consonante ¹ .	er	,era	armiger
s	i			is	is	debilis
s	u ⁵			us	a	rugosus

¹) Excepto *niger* y sus compuestos, y *piger*, que son *-iger*, *-igra*, *-igrum*.

²) Excepto *lacer*, *-era*, *-erum* y *acer*, *alacer*, *-ris*, *-re*.

³) Excepto *degener*, *-eris*, *-ere*.

⁴) Excepto *volucer*, *-cris*, *-cre*, y los masculinos alternativos de muchas palabras, como *equester*, *equestris*; *paluster*, *palustris*; y *acer*, *acris*.

⁵) Excepto el neutro de adjetivos comparativos (*maius*, *minus*, *latus*, etc.), que aquí son tratados como sustantivos.

Nombres con otras terminaciones que *a, e, um, er, is, us*, deben ser sustantivos (ó adjetivos tratados como sustantivos); pero como se ha indicado, los sustantivos arriba mencionados pueden terminar en cualquiera letra (especialmente *a, e, i, m, n, o, r, s, x*). La terminación de un sustantivo nunca cambia.

Las proposiciones anteriores han sido hechas en parte como si fueran principios de gramática latina y en parte como si fueran puntos de partida. Esto es lo que es, y sería útil ahora, recapitular los cambios que aquí se proponen. Si los nombres de animales son considerados como símbolos de especies y géneros, más bien que como nombres latinos de ellos; nos encontramos inmediatamente apartados de todas las reglas de ortografía. Nuestro Código Internacional especifica que: "los nombres científicos de animales deben ser palabras latinas ó latinizadas ó consideradas y tratadas como tales en el caso en que no sean de origen clásico". Nuestros símbolos pueden ser incluidos en la última categoría. Sin embargo se puede mejorar el uso del género en latín. Desde que nuestros nombres son símbolos y no poseen más significado propio, tampoco poseen un género inherente. Se acostumbra asignarles un género de acuerdo con la declinación a la cual ellos hubieran pertenecido en el latín, pero había excepciones debidas al género inherente de las palabras; por ejemplo *Venus* (femenino) y *Adonis* (masculino). En muchos casos los autores nunca han podido concordar el género, unos basando su reclamo en la estructura de la palabra y otros en su significado original. Todo esto puede ser evitado en el futuro con la adopción de un género fijo para cada terminación posible, estando estas basadas en la gramática latina, pero siendo más comprensivas por no admitir excepciones.

El único cambio es pues, la uniformación de unos pocos variables que existen y la adición de unos pocos factores nuevos para cubrir los que no pueden existir en el verdadero latín. El objeto es la uniformidad en la concordancia de los nombres específicos con los genéricos; y creo que las proposiciones aquí hechas pueden ser aceptadas en nuestros procedimientos actuales sin ningún cambio en las Reglas Internacionales. Los nombres seguirán siendo tratados como si fueran de origen clásico, ellos seguirán concordando gramaticalmente con el nombre genérico. Solamente necesitamos interpretar "gramaticalmente" al nombre, para incluírlo en una regla más rígida de terminaciones, que la previamente usada de la gramática latina.

PEQUENAS COMUNICAÇÕES.

A Plea for Brevity and Sanity in Zoological Nomenclature.

Under this title, J. C. Faure (Journal Ent. Soc. South Africa, March 1946, pp. 39-44) published an article from which we quote the following topics:

"There are some physiologists, morphologists and other nonsystematists who regard taxonomy as a branch of zoology that is beyond the pale of modern science, and quite unworthy of the attention of serious workers. Taxonomists very naturally resent this sort of attitude, and they have plenty of opportunities to smile when those who deprecate taxonomy nevertheless come "hat in hand" to ask the despised systematist for identifications of the material used in their "truly scientific" work.

This contemptuous attitude is quite unworthy of any good scientist, and it is greatly to be regretted that we do not see more mutual respect and coöperation between non-systematists and taxonomists. But there are certain tendencies in taxonomy that serve as grist for the mills of the despisers and deprecators. One of these is the most regrettable habit of using long and still longer generic and specific names that tend to become quite unwieldy and unpronounceable.

In the "supplement" to Neave's indispensable "Nomenclator Zoologicus", published at the end of volume IV, 1940, one finds, on page 736 the entry: *Gammaracanthuskytodermogammarus* Dybowski, 1926. Bull. internat. Acad. Cracovie (B) 1926, 61 — Crust.

If this atrocity of 31 letters were the only name of approximately the same length published by Dybowski, one might pass it over with a sigh of thankfulness that one's special field does not happen to be a study of the Crustacea. One might hope that it was only a slip of the pen. But on paging through the "Supplement" I find about 48 similar monstrosities perpetrated by (presumably) the same Dybowski. Two other gems out of the assemblage might be quoted: *Garjajewiakytodermogammarus* and *Ibexiformiechinogammarus*.

Imagine the compactness and readability of an article on the ecology of say twenty species of gammarids belonging to a dozen of the genera or subgenera bearing these names. Think of the joy of writing these names, followed by specific and possibly subspecific names, on labels intended for slides or specimen tubes!

If some other author, possibly one of Dybowski's disciples, were to feel an irresistible urge to use still more imposing, ponderous or descriptive names, it would be a simple matter for him to make up compounds of say 40 to 50 letters, by adding a few prefixes such as *hetero-*, *cyano-*, or *brachyuro-* to Dybowski's names. Since Dybowski's monstrosities of about 20 to 31 letters each were published by the Cracow "Bulletin" and listed by Neave in his "Supplement", there would appear to be a distinct possibility that even such enormities of 50 letters might conceivably be published.

Many other names proposed as generic and subgeneric names appear to the writer to be unnecessarily long, unwieldy and difficult to pronounce. Paging through Neave's "Nomenclator" at random, one finds, among many others, these names that might have been a good deal shorter: — *Octopodoteuthopsis*; *Paralecithodendrium*; *Paramixogasteroides*; *Paramorphocephalus* and *Prosopoanaphothrips*. But the names proposed by Dybowski in 1926 are so excessively long and unpronounceable that they should not have been published by any scientific journal".

"What can be done about it? — In view of Dybowski's masterpieces quoted above, the time has now arrived for International Congresses to consider whether a new provision should not be inserted into the "Rules", with a view to limiting the length of names. For example: —

No generic, subgeneric, specific or subspecific name proposed as new after... (= a given date) shall have any status of validity or availability under the Rules if it consists of more than *fifteen* letters.

No doubt many systematists will object violently to such an arbitrary limit on the grounds that research must be free, that descriptive names are desirable, that their length cannot be limited, and so on. It is readily granted that such a limitation would be arbitrary and artificial, and that it might prove irksome in practice to authors who worship pompous ponderosity.

What is the alternative? To continue to accept all names proposed, even if they are as "short and easy to handle" as Dybowski's names quoted above? It might be argued that such a matter should be left to the common sense, and the appreciation of the fitness of things, possessed by all (?) authors. If this is the unwritten law today, the results we already have in the way of names that are far too long and unwieldy do not encourage the view that we shall be getting shorter and more pronounceable names in the future.

It is probably true that about 80% or more of all new names proposed are first published in scientific journals. Therefore editors and editorial committees of such serials have a great responsibility and they can exert a far-reaching influence in such a matter as the length and pronounceability of names. It is recognized that editors do not as a rule possess dictatorial powers, since they have to carry out the policy and the instructions of their societies. Nevertheless societies and institutions, or their editors, could exert a very wholesome influence if they were to adopt the policy of not accepting for publication any new names that exceed a "reasonable" length of say fifteen letters, or that are objectionable for other reasons such as unpronounceability. Such a policy could be adopted and carried out immediately; if this were done, it would tend to prepare the ground for action by International Congresses.

If this tendency of using long names should persist unchecked, and perhaps become more fashionable, there would seem to be a distinct danger that taxonomy itself may run the risk of falling into disrepute".

J. C. Faure.

A Proposed Bibliography and Catalogue of World Formicidae.

For the past several years I have been working on a bibliography and catalogue of the Formicidae of the world. At present the bibliography contains ca. 6000 titles, which cover myrmecology from the earliest times to date. All titles found have been included, since it is my feeling that the function of a bibliographer and cataloger is to record everything and anything on his subject and leave matters of value-discrimination to the individual workers as they work on their special problems. An attempt on my part to select the "important" works would only result in a collection of titles with which all well-versed myrmecologists are acquainted, and furthermore would leave out for the most part works of varied value that have been overlooked for years.

Following the publication of the bibliography I plan to bring the 3 parts of the catalogue (1. taxonomic index, 2. subject index, and 3.

geographic and geologic index) up to date as rapidly as possible. The catalogue will presumably be published by the same agency which handles the publication of the bibliography, since it will depend on the bibliography for full citation of source.

In consideration of the time that will of necessity elapse before the bibliography proper is published, I have decided that upon the completion of my Ph. D. thesis (ca. 1949) I shall prepare a mimeographed copy of the bibliography proper (not the catalogue) and send a copy of it to each active myrmecologist known to me at that time.

The proposed bibliography and catalogue represent a life time of unremitting hard work, and without the active cooperation of all myrmecologists they will be very difficult of execution. In the past most myrmecologists once acquainted with my work have been most-cooperative. It is my hope that by writing this brief advance notice about my project, I shall gain the active cooperation of a large circle of myrmecologists throughout the world.

The following types of assistance would be especially helpful to me and if each myrmecologist will take the time to grant as many of these requests as he can it will be greatly appreciated and will speed up my work on the bibliography and catalogue.

1) Kindly prepare a complete and accurate bibliography of your personal contributions to myrmecology, including not only papers which deal exclusively with ants but also papers which deal in part with ants or myrmecophiles. Please number the papers in this list and keep a carbon copy on file.

2) Please send me as complete a set of your reprints as possible. If you have already sent me some of your papers, I can inform you as to the papers which I lack by reference to the numbers of your bibliography. Please send me reprints of all future papers as they appear. In case you do not get reprints of any given contribution, kindly send me a bibliographic notice in place of the reprint.

3) Please send me any reprints of other authors which are no longer of use to you, e. g. duplicates or papers not duplicates which you are not using in your work and for which you do not foresee any future use.

Item 1 will make it possible to do a more accurate and complete piece of work on the preliminary mimeographed bibliography which is to be sent out to the workers several years before the publication of the bibliography in its final form. It is obvious that the preliminary mimeographed bibliography will not be complete nor accurate in all details, since I shall have to do the bulk of the work of checking and correcting titles for the final work after the mimeographed bibliography has been sent out.

Items 2 and 3 are aimed at building up my reprint collection. A large collection of reprints in my office will serve to decrease the amount of time spent in travel and in photo-copying. This represents a long range type of assistance, since having the reprints at hand plays a most important role in cutting down on the time necessary for preparing the 3 parts of the catalogue as well as making it an easy matter to check the accuracy of the bibliographic entries.

Prof. Merle W. Wing
Department of Zoology
North Carolina State College
Raleigh, North Carolina
U. S. A.

Insetos de Palmeiras.

Sob o título "Les Insects des Palmiers", a Editora Paul Lechevalier, rue de Tournon 12, Paris, VI, França, publicou em 1947 magnífico volume de 904 páginas, com 638 figuras, de autoria de P. Lepesme, com concurso de J. Chesquière e colaboração de mais quatro cientistas. O volume é prefaciado pelo Prof. A. Chevalier, conhecido escritor em botânica aplicada tropical. No prefácio Chevalier salienta que, presentemente, são conhecidas 3.000 espécies de palmeiras, as quais se acham distribuídas em 240 gêneros. Diversas espécies tomaram importância de grande relevo na economia do homem. A Tamareira ocupa aproximadamente dois milhões de hectares, podendo ser calculados em cem milhões os pés cultivados. O Coqueiro ocupa mais de três milhões de hectares, sendo representado por cerca de quatrocentos milhões de árvores, das quais 90% pertencem à Ásia tropical e Oceânia. O Dendzeiro, nas plantações recentes de Sumatra e da Ásia Britânica ocupa mais de 100.000 hectares, mostrando-se de elevado rendimento, dando por ano três toneladas de óleo por hectare.

Salienta o prefácio que, além de considerar os insetos apenas como pragas, os autores procuraram frisar a importância da biocenose ou interdependência entre a vida vegetal e animal. Na "Introduction Générale" os autores ponderam a oportunidade de uma publicação de conjunto sobre palmeiras e insetos relacionados do mundo inteiro, bem como sobre meios de controle.

Destina-se a obra a orientar e auxiliar os plantadores de palmeiras, agrônomos, naturalistas, estabelecimentos de pesquisas, etc., assim como provocar novos estudos e investigações. Contém uma lista sistemática dos atuais gêneros de palmeiras e sua distribuição geográfica, bem como listas dos hóspedes de palmeiras divididos pelos grupos botânicos. Para o gênero *Phoenix* são registradas 131 espécies de Artrópodos; 77 espécies para *Areca*, 58 espécies para *Elaeis*, 751 espécies para o gênero *Cocos*.

A segunda parte da monumental obra traz o estudo sistemático dos insetos hóspedes de palmeiras, em ordem taxonômica, indicando os prejuízos causados, e ilustrando numerosas espécies com desenhos e fotografias. Em muitos casos há diagnoses genéricas e chaves específicas dos insetos, o que facilita a identificação das pragas. Diversas correções na sistemática foram introduzidas. A parte final trata da defesa biológica, física e química. Uma bibliografia exaustiva e índices detalhados botânicos e entomológicos encerram o volume. A obra é um compêndio completo da defesa das palmeiras, abrangendo a flora mundial, e neste particular faz época no estudo das palmeiras.

O Estado da Baía foi largamente contemplado. As publicações da Secretaria da Agricultura, desde 1922, sobre as pragas do coqueiro, e as publicações do Instituto Central de Fomento Econômico da Baía sobre o coqueiro e outras palmeiras, de autoria de Gregório Bondar, foram largamente aproveitadas na confecção do volume, com a reprodução de numerosas gravuras. A "Revista de Entomologia" com a publicação de "Notas Entomológicas da Baía" ocupa, na bibliografia e no texto da obra, importante lugar, pelas contribuições ao conhecimento da entomologia das palmeiras, sendo consagradas numerosas espécies novas e a sua biologia.

Na parte da nomenclatura sistemática, de interesse para o Brasil, foram introduzidas algumas modificações: O gênero *Rhina* passou a ser denominado *Rhinostomus* Rafinesque 1815; deste modo a broca de palmeiras, *Rhina barbirostris*, será *Rhinostomus barbirostris*. A totalidade das espécies brasileiras de *Derelomus* foi transferida para o gênero *Notolomus* Lec. 1876.

O livro está òtamente impresso em papel couch ; as gravuras s o n tidas e o volume est  saberbamente encadernado. E' obra indispens vel para agr nomos, plantadores de palmeiras, naturalistas, estabelecimentos de ensino e pesquisas agron micas e biol gicas.

Greg rio Bondar.

VIII Congresso Internacional de Entomologia em Estockholmo.

A Comiss o Organizadora acaba de divulgar um convite para o VIII Congresso Internacional de Entomologia, que se realizar  de 9 a 14 de Agosto de 1948 em Estockholmo. Foram previstas as seguintes sec  es: 1) Sistem tica; 2) Fisiologia; 3) Ecologia e Biogeografia; 4) Morfologia e Anatomia; Embriologia; 5) Entomologia Agr cola; Apicultura; 6) Entomologia Florestal; 7) Inestos nocivos a produtos armazenados; 8) Entomologia M dica e Veterin ria; 9) M todos de combate; Inseticidas; 10) Nomenclatura e Hist ria; Bibliografia; 11) Aracn deos. O programa detalhado dos trabalhos e das manifesta  es cient ficas e sociais que ser o organizadas por ocasi o do Congresso, ser  comunicado mais tarde. O convite   assinado pelo Presidente do Congresso, Prof. Dr. Y. Sj stedt; o Vice-Presidente, Prof. Dr. I. Tr gardh, e pelo Secret rio Geral, Prof. Dr. V. Butovitsch.

Opinions 168 and 191 of the International Commission on Zoological Nomenclature.

Opinion 168. — On the principles to be observed in interpreting Article 30 of the International Code in relation to the names of genera based upon erroneously determined species. (Opinion supplementary to Opinion 65.)

Opinion 191. — On the question whether the use of a new name in explanation of a photograph or other illustration distributed by an author to students or colleagues constitutes "publication" within the meaning of proviso (a) to Article 25 of the International Code.

Not cias Diversas.

O Museu de Hist ria Natural de Basel, Su a (Diretor Prof. Dr. E. Handschin) acaba de adquirir a cole o de formigas do falecido Dr. F. Santschi (Kairouan, Tun sia) e toda a sua bibliografia mirmecol gica. A cole o abrange cerca de 8500 esp cies e variedades, e 3000 tipos ou cotipos.

O conhecido pesquisador da vida das abelhas, Prof. Dr. Karl von Frisch, antigamente Diretor do Instituto Zool gico de Munich, leciona agora na Universidade de Graz, onde tamb m dirige o Instituto Zool gico.

A 18 de Setembro de 1946, Prof. Dr. Karl Escherich festejou em Kreuth (Tegernsee) o seu 75  anivers rio natal cio. Segundo not cias divulgadas, o Prof. Escherich, que continua gozando de boa sa de, est  ocupado em terminar a sua obra sobre os insetos florestais da Europa central. No Instituto de Zoologia Aplicada tornou a lecionar o Prof. Dr. W. Zw lfer.

Por Herbert Osborn (The Ohio Biological Survey) e Jean Le Clerq (Universidade de Li ge, B lgica) foi organizada uma Comiss o para o Estudo dos Preju zos causados pela Guerra   Entomologia (Commission pour l'Etude des Dammages, caus es par la Guerre   l'Entomologie). As comu-

nicações devem ser dirigidas a: M. Jean Le Clerq, Université de Liège, 17 Place Delcour, Liège, Bélgica.

Dr. E. M. Hering schreibt aus Berlin: "Vom Zoologischen Museum wurde etwa ein Fuenftel vernichtet. Die Abteilungen der Lepidopteren und Voegel wurden am meisten beschaedigt. In meinen Lepidopterensaal schlugen 2 Granaten, die recht viele Zerstoerungen anrichteten; das wertvollste Material war aber im Keller geborgen und blieb unbeschaedigt. Die entomologischen Kollegen sind hier noch taetig. An Stelle von Kuntzen verwaltet Dr. Delkeskamp die Coleopteren-Abteilung; an Stelle von Enderlein, der jetzt nur noch bakteriologisch arbeitet, ist Prof. Fritz Peus fuer die Dipteren gekommen. Kollege Arndt (Vermees) wurde hingerichtet; ich selbst kam mit einer Massregelung "wegen staatsfeindlicher Haltung" davon. Fuer die Mallophagen etc. wurde neu eingestellt Dr. St. von Kéler".

Dr. F. Zacher (Berlin-Dahlem) schreibt: "Meine schoene Bruchidensammlung, die auch viel brasilianisches Material enthielt, ist leider im Jahre 1943 den Bomben zum Opfer gefallen".

BIBLIOGRAFIA.

Pelo Dr. P. Wygodzinsky, Rio de Janeiro.

Lepidoptera.

Bruner, S. C., Notas sobre mariposas diurnas miscelanea de Cuba (Lepidoptera: Rhopalocera). — Mem. Soc. Cub. Hist. Nat., 1947, 19 (1): 25-28.

Menciona espécies de *Eurema*, *Euptoicta*, *Phyciodes*, *Vanessa*, *Ageronia*, *Eunica* e *Siderone*.

Hayward, Hesperoidea Argentina. XV. — Acta Zool. Lilloana, Tucumán, vol. 3, 1945, págs. 215-230.

Hayward, K. J., Una especie y forma nuevas de Hesperidos argentinos (Lep. Hesp.). — Acta Zool. Lilloana, Tucumán, vol. 3, 1946, págs. 253-255, 1 fig.

Hayward, K. J., Las especies argentinas de los generos *Mylon* y *Carrhenes* (Lep. Hesperidae). — Acta Zool. Lilloana, Tucumán, vol. 3, 1946, págs. 307-312, 2 pls.

Heikertinger, F., Die Blattschmetterlinge, ein Irrtum der selektionistischen Biologie. — Zentralbl. Ges. Ent., vol. 1, 1946, págs. 156-168, 3 Fig.

Travassos, L., Contribuição ao conhecimento dos Arctiidae. XIII. (Lepidoptera, Heterocera). — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (3): 335-340, 12 fgs.

Trata de *Xanthophaeina levis* (Druce).

Travassos, L., Contribuição ao conhecimento dos Arctiidae. XIV. Género *Euchlaenidia* Hampson, 1901. — Rev. Brasil. Biologia, Rio de Janeiro, vol. 7, 1947, págs. 465-470, 18 fgs.

Williams, J. L., The anatomy of the internal genitalia of *Fumea casta* Pallas (Lep. Psychidae). — Trans. Amer. Ent. Soc., Philadelphia, vol. 73, 1947, págs. 77-84, 2 fgs.

Williams, J. L., The comparative anatomy of the internal genitalia of some Tineoidea (Lep. Gracillariidae-Tischeriidae). — Proc. R. Ent. Soc. London, Series A, vol. 22, 1947, págs. 8-17, 8 fgs.

Coleoptera.

- Anderson, W. H., A terminology for the anatomical characters useful in the taxonomy of weevil larvae. — Proc. Ent. Soc. Washington, 1947, 49 (5): 123-132.
- Buck, J. B., Studies on the firefly. IV. Ten new Lampyrids from Jamaica. — Proc. U. S. Nat. Mus., Washington, vol. 97, 1947, págs. 59-79, 3 pls.
- Fisher, W. S., New Cerambycid beetles belonging to the tribe Rhinotragini. — Proc. U. S. Nat. Mus., Washington, vol. 97, 1947, págs. 47-57.
- Green, J. W., New Eastern American species of *Podabrus* (Col. Cantharidae). — Trans. Amer. Ent. Soc., Philadelphia, vol. 73, 1947, págs. 63-76, 9 figs.
- Guérin, J., Nova espécie do gênero *Saxinis* Lacord. (Clythridae). — Rev. Brasil. Biologia, Rio de Janeiro, vol. 7, 1947, págs. 451-452, 1 fig.

Diptera. -

- Barretto, M. Pereira, Estudos sobre Stratiomyidae brasileiros. I. Duas novas espécies de *Rhingiopsis* Roeder, 1886. — Rev. Brasil. Biologia, Rio de Janeiro, vol. 7, 1947, págs. 439-443, 3 figs.
- Bates, M., The development and longevity of *Haemagogus* mosquitoes under laboratory conditions. — Ann. Ent. Soc. Amer., 1947, 40 (1): 1-12.
- Estuda a influência dos fatores externos sobre a vida de vários *Culicidae* em cativeiro.
- Carrera, M., Sobre o gênero *Cerozodus* Bigot, 1857 (Diptera, Asilidae). — Papéis Avulsos, Dep. Zool. Secr. Agric. São Paulo, 1946, 7 (22): 247-256, 14 fgs.
- O autor redefine o gênero e descreve e figura detalhadamente o genotipo.
- Carrera, M., Asilideos coligidos no Paraguai pela Missão Científica Brasileira (Diptera). — Papéis Avulsos, Dep. Zool. Secr. Agric. São Paulo, 1947, 8 (3): 39-48.
- O autor enumera 22 espécies de 17 gêneros, descrevendo como novo *Diognites anomalus*.
- Carrera, M., Sobre o gênero *Leptopteromyia* Williston, 1908 (Diptera, Asilidae). — Papéis Avulsos, Dep. Zool. Secr. Agric. São Paulo, 1947, 8 (7): 89-96, 7 fgs.
- Contém a redescrição detalhada de *Leptopteromyia gracilis* Williston.
- Carrera, M., Novo gênero e nova espécie de Asilidae (Diptera) do nordeste brasileiro. — Papéis Avulsos, Dep. Zool. Secr. Agric. São Paulo, 1947, 8 (17): 203-208, 9 fgs.
- Macahyba nordestina*, n. g. n. sp.
- Carrera, M., Lopes, H. de Souza & Lane, J., Contribuição ao conhecimento dos Microdontinae neotrópicos e descrição de duas novas espécies de *Nausigaster* Williston (Syrphidae). — Rev. Brasil. Biol., Rio de Janeiro, vol. 7, 1947, págs. 471-486, 49 figs.
- Carrera, M., Lopes, H. de Souza & Lane, J., Um novo gênero e duas espécies de Microdontinae (Syrphidae). — Brasil Médico, Rio de Janeiro, vol. 61, n. 27-28, julho 1947, sep. 5 págs.
- Carrera, M., & Travassos Filho, L., Dados morfológicos e biológicos sobre *Hylemyia poeciloptera* (Malloch, 1921) (Dipt. Anthomyiidae), minadora das folhas de beterraba (*Beta vulgaris* L.). — Pap. Av. Dep. Zool., S. Paulo, vol. 8, 1947, págs. 49-62, 2 est., 12 figs.
- Cresson, E. T., A systematic annotated arrangement of the genera and species of the neotropical Ephydriidae. II. The Subfamily Notiphilinae. — Trans. Amer. Ent. Soc., Philadelphia, vol. 73, 1947, págs. 35-61, 105-124.

- Fairchild, G. B., Additional notes on the Tabanidae of Panama. (Dipt.). — Ann. Ent. Soc. Amer., Columbus, vol. 39, 1946, págs. 564-575.
- Floch, H. & Abonnenc, E., Clef d'identification de 140 phlébotomes mâles du Nouveau Continent. — Bol. Ent. Venez., Caracas, 1947, 6 (1): 1-24.
- Um trabalho muito útil, que facilitará a determinação dos flebotomos das Américas.
- Hardy, E., The genus *Leptopteromyia* (Asilidae-Diptera). — J. Kansas Ent. Soc., 1947, 20 (2): 71-75, 2 figs.
- Hering, E. M., Neue Arten und Gattungen. — Siruna Seva, Berlim, Folge 1, 1940, págs. 1-16, 6 figs.
- Traz espécies neotrópicas de *Trypanaresta* n. g. (chave), *Tetreuaresta*, *Protensina*. (Fam. Trypetidae).
- Hering, E. M., Neue Dacinae und Trypetinae des Zoologischen Museums der Universitaet Berlin. — Siruna Seva, Berlim, Folge 3, págs. 1-25, 20 figs.
- Inclui *Hexaresta juanita* n. g. n. sp. (Surinam).
- Hering, E. M., Neue Gattungen und Arten der Fruchtfliegen. — Siruna Seva, Berlim, Folge 6, 1947, 16 págs., 8 figs.
- Contém uma chave das subfamílias e tribos da fam. Trypetidae.
- James, M. T., A review of the Larvaevorid flies of the tribe Leskiini with the setulose first vein (R_1). — Proc. U. S. Nat. Mus., Washington, vol. 97, 1947, págs. 91-115.
- Lopes, H. de Souza, Sobre o gênero *Notochaeta* Aldrich, 1916, com descrições de duas espécies novas do Amazonas (Diptera, Sarcophagidae). — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (3): 375-382, 13 figs.
- Pinotti, M., A malária no Brasil. — Folha Médica, Rio de Janeiro, vol. 28, 1947, 156 págs. (sep.).
- Rachou, R. G. & Ferreira, M. O., As *Kerteszas* como os grandes responsáveis pela malária no litoral do Estado de Santa Catarina. — Folha Médica, vol. 28, 1947, 8 págs. (sep.).

Hymenoptera.

- Cushman, R. A., A generic revision of the Ichneumon-Flies of the tribe Ophionini. — Proc. U. S. Nat. Mus., Washington, vol. 96, 1947, págs. 417-482, 8 pls.
- Trabalho importante, com chave dos gêneros, e descrição de novos gêneros e novas espécies da região neotrópica.
- Gahan, A. B., Review of some Chalcidoid genera related to *Cerocephala* Westwood. — Proc. U. S. Nat. Mus., Washington, vol. 96, 1946, págs. 349-376, 2 pls.
- Traz Cerocephalinae n. subf. com chave dos gêneros.
- Pate, V. S. L., The Pemphilidinae wasps of the Caribees (Sphecidae). — Trans. Amer. Ent. Soc., Philadelphia, vol. 73, 1947, págs. 1-33, 1 plate, 1 fig.
- Schneirla, T. C., Problems in the biopsychology of social organization. — Jour. Abnorm. and Social Psychology, vol. 41, 1946, págs. 385-402.
- Schneirla, T. C., A study of army-ant life and behavior under dry-season conditions with special reference to reproductive functions. — Amer. Mus. Nov., n. 1336, 1947, págs. 1-20, 2 figs.
- Silva, P., Controle biológico da "Traça do cacau" pelo *Microbracon hebetor* (Say). — Inst. Cacau Baía, bol. técn. 7, 1947, 39 pgs., 14 figs., 1 mapa, 8 tabelas.
- Smith, M. R., A generic and subgeneric synopsis of the United States ants, based on the workers (Hym. Formicidae). — The Amer. Midland Nat., Notre Dame, vol. 37, 1947, págs. 521-647, 85 figs.
- Trabalho notável, tratando de 61 gêneros, com excelentes figuras.

Hemiptera.

Barber, H. G., The family Lygaeidae (Hemiptera-Heteroptera) of the Island of Cuba and the Isle of Pines. Part I. — Mem. Soc. Cub. Hist. Nat., 1947, 19 (1): 55-75.

Este trabalho contém chaves para vários gêneros, com descrição de novas espécies de *Lygaeus*, *Kleidocerys*, *Ischnodemus*, *Patritius* e *Ninyas*.

Barber, H. G. & Bruner, S. C., The Coreidae of Cuba and the Isle of Pines with the description of a new species (Hemiptera-Heteroptera). — Mem. Soc. Cub. Hist. Nat., 1947, 19 (1): 77-88.

Contém a curta descrição de *Mamurius cubanus* n. sp.

Hoberlandt, L., A new species of *Phymata* from South America (Heteroptera, Phymatidae). — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (3): 323-326, 3 fgs.

Phymata tessera n. sp. (Argentina).

Ilisio, T. & Sailer, R. I., The orchid bugs of the genus *Tenthecoris* Scott (Hemiptera: Miridae). — J. Wash. Acad. Sc., 1947, 37 (2): 64-72, 21 fgs.

Uma revisão do gênero, com uma chave e a descrição de numerosas espécies novas.

Lent, H. & Wygodzinsky, P., Contribuição ao conhecimento dos *Reduviinae* americanos (Reduviidae, Hemiptera). — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (3): 341-368, 88 fgs.

Uma chave dos gêneros americanos de *Reduviinae*, dos quais são novos *Pseudozelurus* e *Neivacoris*; novas espécies de *Pantopsilus*, *Opisthacidius* e *Neivacoris*.

Squire, F. A., Genetic behaviour of the red form of *Dysdercus discolor* Walker in the West Indies (Hem.). — Proc. R. Ent. Soc. London, Series A, vol. 22, 1947, págs. 5-7.

Wygodzinsky, P., Sobre um novo gênero e uma nova espécie de *Ectrichodiinae* do Brasil (Reduviidae, Hemiptera). — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (3): 301-305, 17 fgs.

Travassocoris pulchra n. g. n. sp. (Goiás).

Wygodzinsky, P., Sobre um novo gênero e uma nova espécie de *Schizopterinae* do Brasil (Cryptostemmatidae, Hemiptera). — Bol. Ent. Venez., Caracas, 1947, 6 (1): 25-35, 18 fgs.

Biturunannus reuteri n. g. n. sp. (Paraná).

Wygodzinsky, P., Sur le *Trichotonannus setulosus* Reuter, avec une théorie sur l'origine des harpagones des Hétéroptères mâles (Hemiptera Heteroptera, Cryptostemmatidae). — Rev. Franç. Ent., Paris, 1947, 14 (2): 118-125, 23 fgs.

Wygodzinsky, P., Sobre alguns Reduviidae do Brasil Central. — Rev. Brasil. Biologia, Rio de Janeiro, vol. 7 (4), 1947, págs. 423-434, 50 fgs.

Orthoptera, Odonata.

Liebermann, J., Nuevos materiales acridicos de la colección del Instituto Oswaldo Cruz, con algunas observaciones sobre *Episcopottetix* Rehn, 1902. — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (3): 391-394.

Santos, N. D., Descrição do alotipo macho de *Dasythemis essequiba* Ris, 1919 e notas sobre a fêmea (Odonata, Libellulidae). — Rev. Brasil. Biol., Rio de Janeiro, 1947, 7 (3): 289-291, 6 fgs.

Isoptera, Mallophaga, Siphonaptera, Strepsiptera, Collembola, Zoraptera.

Adamson, A. M., Termites in Trinidad and Tobago, B. W. I. — Tropical Agriculture, 1946, 23 (12): 221-223.

Lista das espécies, natureza e extensão dos prejuízos, métodos de proteção.

Gisin, H., Sur la nomenclature de quelques genres importants de Collembolés. — Mitt. Schweiz. Ent. Ges., Bern, 1946, 20 (1):135-136.

O autor opina que não devem ser usados os nomes indicados como tendo prioridade, nos trabalhos de Salmon (1945) e Laing (1945).

Gosswald, K., Richtlinien zur Zucht von Termiten. — Z. Angew. Ent., Berlin, 1943, 30:297-316, 14 fgs.

Métodos para a criação dos cupins.

Guimarães, L. R., Notas sobre *Microctenia* (Menoponidae-Mallophaga) e descrição de uma nova subespécie. — Papéis Avulsos, Dep. Zool. Secr. Agric. São Paulo, 1947, 8 (16): 197-202, 3 fgs.

Guimarães, L. R., Contribuição ao conhecimento dos malófagos dos psitácidas brasileiros. I. Espécies da família Philopteridae (Ischnocera). — Arq. Zool. Est. São Paulo, 1947, 5 (5): 243-310, 28 fgs.

O autor considera todos os malófagos pertencentes à família *Philopteridae*, parasitas de *Psittacidae*, como fazendo parte do gênero *Paragoniocolotes* Cummings. Numerosas novas espécies são descritas.

Guimarães, L. R., Duas novas espécies de *Polygenis* Jordan, 1939 (Pulicidae-Suctoria). — Papéis Avulsos, Dep. Zool. Secr. Agric. S. Paulo, 1947, 8 (15): 189-195, 2 fgs.

P. dentei e *atra* n. spp. (São Paulo).

Hofeneder, K., Ueber Praeparieren von Strepsipteren. — Zentrbl. Ges. Ent., vol. 2, 1947, págs. 1-12.

Jeannel, R., Sur la position systématique des Strepsiptères. — Rev. Franç. Ent., Paris, 1945, 11:111-118, 8 fgs.

Laing, F., The interpretation of some early Collembolan generic names. — Ent. Month. Mag., London, 1945, 81:134-139.

Demonstra a prioridade de alguns nomes antigos (veja também Gisin, H.).

Salmon, J. T., A portable apparatus for the extraction from leaf mould of Collembola and other minute organisms. — Dominion Mus. Rec. Entom., Wellington, Nova Zelândia, vol. 1, no. 3, 1946, pgs. 13-18, 6 fgs.

Descreve e figura uma espécie de funil de Berlese portátil, e desmontável, esquentado por meio de eletricidade ou por álcool.

Silvestri, F., Nuovo concetto di fasi corrispondenti all'età della colonia negli individui di una stessa specie componenti una colonia di Termiti e descrizione di due specie nuove di *Syntermes*. — Boll. Lab. Ent. Portici, 1945, 6:1-14, 4 fgs.

As novas espécies são do Brasil.

Silvestri, F., Descrizione di due specie neotropicali di *Zorotypus* (Insecta, Zoraptera). — Boll. Lab. Ent. Agr. Portici, 1946, 7:1-12, 6 fgs.

O autor dá a redescricao de *Z. neotropicus* Silv. de Costa Rica, e descreve *Z. brasiliensis* n. sp., do Brasil, sendo que a espécie parece ser constituída por fêmeas apteras e aladas, ambas partenogenéticas; o ovo das duas espécies é também descrito.

Werneck, F. L., Os Malófagos de *Cervus elaphus*, *Dama dama* e *Capreolus capreolus*. — Rev. Bras. Biol., Rio de Janeiro, vol. 7 (4), 1947, págs. 403-417, 11 fgs.

Wygodzinsky, P., Sobre uma nova espécie do gênero *Symphylurinus* Silvestri (Projapygidae, Entotrophi) de São Paulo, Brasil. — Livro homenagem Ferreira d'Almeida, São Paulo, 1946, no. 42, pgs. 341-345, 12 fgs.

Descricao de *S. almeidai* n. sp.

Bibliografia, Nomenclatura, Técnica.

Allen, A. A., Nomenclature, another plea for realism. — Ent. Month. Mag., London, 1945, 81:81-83.

Amaral, A. do, Nota sobre Nomenclatura Zoológica. — Papéis Avulsos, Dep. Zool. Secr. Agric. São Paulo, 1946, 7 (14):181-194.

Tradução para o vernáculo, das opiniões 134-156; entre as quais muitas referentes à entomologia.

- Bayard, A., Construction d'un support orientable pour l'observation des petits insectes. — *L'Entomologiste*, Paris, 1945, 1:170-172, 1 fg.
- Bradley, J. C., On the question whether a generic, or specific, name based upon the work of an animal but not on the animal itself has any standing under Article 25 of the international Code. — *Bull. Zool. Nomencl.*, London, 1945, 1:93-94.
- Carpenter, M. M., Bibliography of bibliographies of entomologists. — *Amer. Midl. Nat.*, Notre Dame, 1945, 33:1-116.
- Chauvin, R., Deux appareils pour l'étude de l'activité des petits animaux. — *Bull. Soc. Zool. France*, Paris, 1943, 68:53-56, 3 fgs.
- Cockerell, T. D. A., On the status, under article 3 of the International Code, of a trivial name consisting of un-latinised modern patronymic. — *Bull. Zool. Nomencl.*, London, 1945, 1:89.
- Cockerell, T. D. A., Problems of nomenclature. — *Nature*, London, 1945, 155:548.
- Faure, J. C., A plea for brevity and sanity in zoological nomenclature. — *Jour. Ent. Soc. S. Africa*, vol. 9, 1946, pags. 39-44.
- Fennah, R. G., On the status, under Article 3 of the International Code, of a specific or subspecific trivial name consisting of a phonetic reproduction of the initial letters of two or more patronymics. — *Bull. Zool. Nomencl.*, London, 1945, 1:89.
- Grensted, L. W., The formation and gender of generic names: a further note. — *Ent. Month. Mag.*, London, 1945, 81:118.
- Hedricke, H., Ueber das Erscheinungsjahr von Fabricius' *Systema Piezatorum*. — *Mitt. Dtsch. Ent. Ges. Berlin*, 1941, 10:82-83.
Sobre o ano de publicação da obra citada.
- Hemming, F., On the proposal that the International Code should be amended to provide for the establishment of "neotypes". — *Bull. Zool. Nomencl.*, London, 1945, 1:108-111.
- Hughes, R. C., On the interpretation of Article 23 of the International Code in relation to the use of brackets when citing the name of an author of a subspecific trivial name when that name appears in conjunction with the same generic name but not in the same relationship thereto as when originally published. — *Bull. Zool. Nomencl.*, London, 1945, 1:91-92.
- Hungerford, H. B., On the status, under Article 25 of the International Code, of specific names published with descriptions but without comparison with allied species. — *Bull. Zool. Nomencl.*, London, 1945, 1:102-103.
- Jones, E. T., & Piper, P. A., Insect photography with limited equipment. — *Trans. Kans. Acad. Sci.*, Lawrence, 1944, 47:275-282, 2 pls.
- Jordan, K., On the status, under Article 25 of the International Code, of the names of species of parasites published, prior to January 1st, 1931, with no description, definition, or indication other than the name of the host. — *Bull. Zool. Nomencl.*, London, 1945, 1:97-98.
- Muesebeck, C. F. W., On the interpretation of article 23 of the International Code in cases where a species is originally described as being both in a genus and in a subgenus and later the subgenus is elevated to generic rank and the species is transferred to the genus so erected. — *Bull. Zool. Nomencl.*, London, 1945, 1:92.
- Panneel, H., Le collectionneur d'insects. Comment découvrir, conserver, étudier les insectes. — Paris, Vigot Frères, 1944, 160 pgs., 335 fgs.
- Rehder, H. A., On the status under Article 25 of the International Code, of generic names where the genera concerned are founded upon figures only. — *Bull. Zool. Nomencl.*, London, 1945, 1:94-95.
- Staercke, A., Definições van species (soort), subspecies (ras, stirps), varieteit en aberratie. — *Ent. Ber.*, Amsterdam, 1942, 11:40-48.
Definições das categorias em sistemática.

- Travassos Filho, L. & Pereira, C., Comportamento da humidade em recipientes de barro poroso para a criação de atropodos. — Pap. Avulsos, Dep. Zool., S. Paulo, vol. 8, 1947, págs. 123-126, 3 pls.
- Wellington, W. G., A laboratory method for determining the minimum active temperature of insects. — Canad. Ent., Guelph, 1945, 77:135-136.

Vária.

- Agrell, I., An objective method for characterization of animal and plant communities. — Kungl. Fysiograf. Saellsk. Lund Foerh., vol. 15 (9), 1945, pgs. 1-15.
- Anduze, P. J., Pifano, C., F. & Vogelsang, E. G., Nomina de los atropodos vulnerantes conocidos actualmente en Venezuela. — Bol. Ent. Venez., Caracas, 1947, 6 (num. extraord.): 1-16.
- Enumera insetos transmissores das ordens Anoplura, Hemiptera, Aphaniptera, e Diptera.
- Astaurov, B. L., Thermo-activation as a phenomenon and as a means to eliminate the embryonic diapause. (Em russo, com resumo inglês. — J. Gen. Biol., Moscou, 1943, 4:313-344, 7 fgs.
- Trata de lepidópteros.
- Beament, J. W. L., The cuticular lipoids of insects. — J. Exp. Biol., London, 1945, 21:115-131, 7 fgs.
- Beaumont, J. de, L'origine et l'évolution des Sociétés d'insectes. — Rev. Suisse Zool., Geneva, 1945, 52:329-338.
- Berg, R. L., Correlation between the mutability and the regulatory capacity of the organism and the evolutionary significance of this correlation. (Em russo, com resumo inglês). — Bull. Acad. Sci. U.R.S.S., Moscou, Ser. Biol., 1945:367-376.
- Busnel, R. G. & Drilhon, A., Recherches sur la répartition de la riboflavine (vitamine B2) et de quelques autres substances fluorescentes chez les insectes. — Arc. Zool. Exp. Gen., Paris, 1942, 82:321-356, 1 pl., 3 gráficos.
- Chauvin, R., Ce qu'il faut savoir sur la vie de l'insecte. La vie de l'insecte. Physiologie et Biologie. — Paris, Lechevalier, 1943, 230 (4) pgs., 77 fgs.
- Chen, S. H., The retention of ancestral food habit in the larval stage of difformitrophic insects. — Sinensia (?Chungking), 1943, 14:29-32.
- Cockerell, T. D. A., The Colorado Desert of California: its origin and biota. — Trans. Acad. Sci., Manhattan, 1945, 48:1-39, 1 mapa, 13 fgs.
- Freeman, J. A., Studies in the distribution of insects by aerial currents. The insects population of the air from ground level to 300 feet. — J. Anim. Ecol., London, 1945, 14:128-154, 3 grafs.
- Fulmek, L., Etwas ueber Hyperparasiten. — Zbl. Gesamtgebiet Ent., Lienz (Tirol), 1946, 1 (4):97-106.
- Considerações gerais e estatísticas sobre o hiperparasitismo.
- Gilyarov, M. S., Influence of the character of dispersal on the ontogenesis of insects. (Em russo, com resumo inglês). — J. Gen. Biol., Moscou, 1945, 6:26-36.
- Goldschmidt, R. B., Mimetic polymorphism, a controversial chapter on Darwinism. — Quart. Rev. Biol., Baltimore, 1945, 20:147-164, 205-230, 17 fgs.
- Hardouin, R., Le peuplement entomologique du rosier. — Paris, Preses Universitaires de France, 1943, XV+383 pgs., 7 pls., 27 fgs.
- Hoffmann, C. H., Townes, H. K., Sailer, R. I. & Swift, H. H., Field studies on the effect of DDT on aquatic insects. — Publicação multigrafada do U. S. Dep. of Agriculture, 1946, 20 pgs., 1 pl., 5 grafs.

- Hurst, H., Enzyme activity as a factor in insect physiology and toxicology. — *Nature*, London, 1945, 156:194-198.
- Jeannel, R., Qu'est-ce que l'espèce? — *Rev. Franç. Ent.*, Paris, 1941, 8:49-54.
- Jeannel, R., L'isolement, facteur de l'évolution. — *Rev. Franç. Ent.*, Paris, 1941, 8:111-125, 29 fgs.
- Jeannel, R., La genèse des faunes terrestres. *Elements de biogéographie*. — Paris, Presse Universitaire de France, 1942, VIII+513 pgs., 8 pls., 213 fgs.
- Uma obra clássica sobre os problemas da zoogeografia.
- Jeannel, R., Les fossiles vivants des cavernes. — Paris, Gallimard, 1944, 323 pgs., 12 pls.
- Kalmus, H., Correlation between flight and vision, and particularly between wings and ocelli, in insects. — *Proc. R. Ent. Soc.*, London, 1945, (A) 20:84-96, 2 fgs.
- Lafon, M., Recherches biochimiques et physiologiques sur le squelette tégumentaire des arthropodes. — *Anr. Sci. Nat.*, Paris, (1943) 1944, (11) 5:113-146.
- Larsén, O., Das Meron der Insekten. — *Foerh. K. Fysiogr. Saellsk.* Lund, 1945, 15:96-104, 8 fgs.
- Larsén, O., Die hintere Region der Insektenhufte. — *Foerh. K. Fysiogr. Saellsk.*, Lund, 1945, 15:105-115, 12 fgs.
- A região posterior da coxa dos insetos.
- Lizer y Trelles, C. A. & Molle, C. C., Estructura anatomica de filocecidias neotropicales. — *Rev. Bot. Inst. Miguel Lillo*, Tucumán, 1945, 11:153-187, 20 pls., 31 fgs.
- Maki, T., Studies on the thoracic musculature of insects. — *Mem. Fac. Sci. Agric. Taihoku Imper. Univ.*, Formosa, vol. 24, 1938, 343 pgs., 17 pls.
- Trabalho exaustivo sobre o assunto.
- Obenberger, J., Isma zase svobodni. — *Casopis Cs. Špol. Ent.*, vol. 42, 1945, 15 pgs., 6 fgs.
- Relatório impressionante sobre as devastações do "furor teutonicus" no campo da ciência natural e da entomologia na Checoslováquia, com documentação fotográfica, e o obituário dos entomologistas checos mortos pelos nazistas.
- Paulian, R., L'endosquelette thoracique des larves d'insects. — *Mém. Mus. Hist. Nat.* (n. s.), 1944, 18:191-218, 19 fgs.
- Pessoa, S. B., *Parasitologia Médica*. — Ed. Renascença, S. Paulo, 1946, 838 págs., 367 fgs., 1 est. col.
- Schmidt, E., Ueber die Bedeutung des Pterostigmas bei Insekten. — *Mitt. Dtsch. Ent. Ges.*, Berlin, 1939, 9:53-56, 2 fgs.
- Seaman, E. A., An insect light trap for use with auto vehicles in the field. — *Mosq. News*, New Brunswick, N. J., 1945, 5:79-81, 2 fgs.
- Snodgrass, R. E., The feeding apparatus of biting and sucking insects affecting man and animals. — *Smithson. Misc. Coll.*, Washington, 1944, 104 (7):113 pgs., 39 fgs.
- Sotavalta, O., Some studies on the flying tones of insects and the determination of the frequency of the wing strokes. — *Ann. Ent. Fenn.*, Helsinki, 1941, 7:32-52.
- Strickland, A. H., A survey of the Arthropod soil and litter fauna of some forest reserves an cacao estates in Trinidad, British West Indies. — *J. Anim. Ecol.*, London, 1945, 14:1-11, 1 fg.
- Thompson, W. R. (editor), A catalogue of the parasites and preadtors of insect pests. Section I. Parasite host catalogue. Part 6. Parasites of the Lepidoptera (CI-F). — *Belleville, Ont., Imp. Paras. Serv.*, 1945, pgs. 131-258, multigrafado.

Travassos Filho, F. & Carrera, M., Segunda expedição científica a Porto Cabral, margem paulista do Rio Paraná. — Arq. Zool., Est. São Paulo, 1946, 5 (2):89-134, 6 pls.

Voûte, A. D., Factoren, doe reguleerend werken op de populatiedichtheid van insecten. — Hand. Ned. Nat.-En. Geneesk. Congr., 1941, 27:129-132.

Sobre os fatores que regulam a densidade das populações dos insetos.

Voûte, A. D., Classification of factors influencing the natural growth of a population of insects. — Acta Biotheor., Leiden, 1943, 7:99-116.

Wellington, W. G., Conditions governing the distribution of insects in the free atmosphere. Parts I-IV. — Canad. Ent., Guelph, 1945, 77:7-15, 21-28, 44-49, 69-74.

Dado à publicidade em 31 de Dezembro de 1947.

Redator: Frei Thomaz Borgmeier, O. F. M., Convento S. Antônio,
Largo da Carioca, Rio de Janeiro, Brasil

Printed in Brazil

Impresso nas Oficinas Gráficas da Editora Vozes Ltda., Petrópolis, R. J.

REVISTA DE ENTOMOLOGIA

VOL. 19

JUNHO DE 1948

FASC. 1-2

Redator e Editor: Thomaz Borgmeier, O. F. M.

Sumário

Bondar, G., Notas Entomológicas da Baía. XX.....	1
Moulton, D., The Genus <i>Frankliniella</i> Karny (Thysan.)	55
Paramonow, Prof. Dr. S. J., Uebersicht der Bombyliiden-Gattung <i>Lyophlaeba</i> Rond. (Diptera).....	115
Alexander, C. P., Notes on the Tropical American Species of <i>Tipulidae</i> (Diptera). IV.....	149
Borgmeier, T., O. F. M., Die Geschlechtstiere zweier Eciton-Arten (Hym. Formicidae)	191
Uhmann, E., Neue Hispinae aus Suedamerika (Col.)...	207
Lane, John, Mycetophilinae de Boracéia, S. Paulo (Dipt.)	231
Carvalho, José C. M., Mirídeos Neotropicais. XXXII. (Hemiptera).	279
Wygodzinsky, Petr, Contributions Towards the Knowledge of the Genus <i>Cryptostemma</i> Herrich-Schaeffer, 1835 (Hemiptera)	283
Bechyné, Jan, Notes sur les Chrysomélides de l'Amérique du Sud (Col.)	295
Moure, Pe. J. S., Notas Sobre Algumas Abelhas de Tacanas (Hymenopt. Apoidea)	313
Deboutteville, C. Delamare, Observations sur l'écologie et l'éthologie des Zoraptères	347
Saylor, Lawrence W., Four New South American Melolonthine Scarab Beetles	353
Paramonow, Prof. Dr. S. J., Ueber die richtige Stellung der Gattungen <i>Dolichogaster</i> Macq. (Mydidae) und <i>Megascelus</i> Philippi (Apioceridae) (Diptera)	357
Séguy, E., Sur le Genre <i>Penquistus</i> (Dipt. Anthomyzidae)	360
Personalia	363
Pequenas Comunicações	366
Bibliografia	371

REVISTA DE ENTOMOLOGIA

Diretor: Thomaz Borgmeier, O. F. M.

Convento S. Antônio, Largo da Carioca, Rio de Janeiro, Brasil

A Revista de Entomologia é internacional e quadrimestral, e se destina à publicação de trabalhos originais sobre insetos em geral, principalmente da fauna neotropical.

Na secção de Bibliografia são registrados, além de trabalhos de interesse geral, todos os trabalhos publicados sobre a fauna neotropical, desde 1930.

Os autores recebem 50 separados dos seus trabalhos gratuitamente. Os originais devem ser escritos à máquina, com espaço duplo. As ilustrações ficam sujeitas ao critério do editor, preferindo-se desenhos a traço.

Preço da assinatura para 1948:

Assinatura anual no Brasil: Cr\$ 80,00. Nas Livrarias: Cr\$ 100,00.

The Revista de Entomologia is international, being published three times a year, and will be devoted to insects in general, mainly of the neotropical fauna.

The section of Bibliography gives brief abstracts of all papers published about the neotropical fauna and issued since 1930.

Authors receive 50 copies of their papers free. Manuscripts must be typewritten and double-spaced. Illustrations are published at the editor's discretion, preference being given to line-drawings.

Price of subscription for 1948:

5 U.S. dollars, directly from the Editor. At bookseller's, 6 U.S. dollars. Discount to booksellers and publishers: 20%.

All orders for subscription and payment should be addressed to: Thomaz Borgmeier, Convento S. Antonio, Largo da Carioca, Rio de Janeiro, Brazil.

Back volumes at application.

Notas Entomológicas da Baía. XX.

Por Gregório Bondar,
Biologista da Secretaria de Agricultura do Estado da Baía.

(Com 30 figuras)

S u m á r i o .

- I. Subfamília Dinomorphinae (Col. Curc.)
Dinomorphus pimelioides Perty
Dinomorphus cissophagus n. sp.
- II. Subfamília Pyroplinae (Col. Curc.)
Craspedotus similis n. sp.
Craspedotus trapia n. sp.
- III. Subfamília Barinae (Col. Curc.)
 - A) Baríneos em plantas Dicotiledóneas
Eurhinus heringeri n. sp.
Eurhinus splendidus n. sp.
Eurhinus willinki n. sp.
Eurhinus azureatus Casey
 - B) Baríneos em plantas Monocotiledóneas
 - a) Centrinini em Marantáceas
Linonotus justus n. sp.
Linonotus orlandoi n. sp.
Linonotus nicki n. sp.
Linonotus rubicundus n. sp.
Linonotus caseyi n. sp.
Linonotus modicus n. sp.
Megavallius pilosiventris n. sp.
Megavallius paulistanus n. sp.
Megavallius kuscheli n. sp.
Valltopsis belmonte n. sp.
Valltopsis armatus n. sp.
 - b) Centrinini em Commelináceas
Saldtopsis armata Casey
 - c) Centrinini em Orquidáceas
Montella rufipes n. g. n. sp.
Montella oncidii n. sp.
 - d) Madarini em Palmáceas
Palmoderes suturalis n. g. n. sp.
 - e) Madarini em Marantáceas
Loboderes saranthae n. sp.
Loboderes flavicornis Gyll.
Loboderinus rufirostris n. sp.
Loboderinus basalis Solari
- IV. Subfamília Cryptorrhynchinae (Col. Curc.)
Chalcodermus lunatus n. sp.
Chalcodermus serjaniae n. sp.
Chalcodermus parsepilous n. sp.
Chalcodermus stigmatophylli n. sp.
Chalcodermus heteropteri n. sp.
Chalcodermus vohystiae n. sp.
Chalcodermus capichaba n. sp.
Chalcodermus gibbifrons n. sp.

I. Subfamília Dinomorphinae (Col. Curc.)

Nova Espécie e Dados Biológicos.

Agrupando abundante material de Curculionídeos do globo terrestre pelos caracteres morfológicos, dividiu Lacordaire a numerosa família em duas Legiões: Adelognatos, com mandíbulas totalmente ou em parte escondidas pelo queixo, e Fanerognatos, nos quais as mandíbulas são completamente descobertas.

No fim dos Adelognatos Oxioftalmos, de olhos estreitados, constituiu Lacordaire a tribo "Brachycerides", com os seguintes

caracteres: "Antenas imperfeitamente cotoveladas, somente o primeiro segmento da clava desenvolvido, os outros curtos e esponjosos". São espécies africanas, com a particularidade de serem pedestres, apteras, desprovidas da capacidade de voar. Uma dessas espécies, *Brachyceropsis verrucosus* F. 1792, (*Brachycerus tuberculosus* Gyll. 1833) passou atualmente à legião dos Fanerognatos, o que indica que a passagem entre as duas subdivisões fundamentais é um tanto discutível.

Nos Fanerognatos, a primeira tribo instituída por Lacordaire é a dos "Dinomorphides", baseada numa espécie baiana. A tribo figura na nomenclatura atual como subfamília Dinomorphinae Schenkling e Marshall, 1931. Abrange dois gêneros monotípicos: *Brachyceropsis verrucosus* F., espécie africana e *Dinomorphus pimelioides* Perty, espécie brasileira, originária da Baía. Os caracteres essenciais da subfamília, conforme a chave de Lacordaire, são: Antenas de 8 segmentos aparentes; somente o primeiro da clava desenvolvido, os outros curtos, esponjosos, confusos em conjunto". Com exceção das mandíbulas descobertas, os restantes característicos da subfamília são estreitamente ligados aos Adelognatos. A subfamília acha-se baseada numa única espécie, representada apenas por dois exemplares nos museus da Europa inteira. "C'est un des Curculionides les plus rares dans les collections", conforme atesta Lacordaire.

Decorreu mais de um século sem que a espécie fosse encontrada ou mencionada na literatura. Coletamos ultimamente numerosos exemplares de *Dinomorphus* e estudamos a sua biologia. Achamos oportuno tornar mais conhecido esse remanescente de antiquado grupo entomológico.

Traduzimos de Lacordaire a diagnose da tribo "Dinomorphides", atual subfamília Dinomorphinae:

"Sub-queixo engrossado, fortemente trilobado, em contacto com as mandíbulas. Mandíbulas em forma de alicate, bem espessas, enchendo o quadro bucal. Queixo e maxilas invisíveis, retraídos na cavidade da boca. Rostro bem robusto; escrobos completos na frente, fundos, arqueados. Antenas curtas, fortes; funículo progressivamente engrossado, de seis segmentos; somente o primeiro segmento da clava desenvolvido, os outros curtos, esponjosos e confusos em conjunto. Olhos transversais, pronunciadamente alongados e acuminados inferiormente. Protórax com lóbulos oculares; prosterno escavado na frente das coxas dianteiras. Corbelhas das patas posteriores cavernosas; tíbias inermes no ápice; tarsos longos, esponjosos inferiormente. Os três segmentos intermediários do abdomen iguais, separados por sulcos retilíneos fundos. Metasterno excessivamente curto".

"Esse conjunto insólito de caracteres observa-se somente no gênero *Dinomorphus* Perty, um dos mais extraordinários da família. Reúne, efetivamente, particularidades emprestadas pelo menos de três grupos dife-

rentes que, ao mesmo tempo, sofreram modificações especiais. Os órgãos bucais, exceto as mandíbulas, têm analogia com os Amycterídeos; as antenas, se fossem imperfeitamente cotoveladas, seriam de *Barycerus*; finalmente, o protórax, canaliculado inferiormente, seria como nos Byrsopídeos, do qual afasta-se fortemente pelos tarsos, que se parecem muito com os de *Lithinus* ou de *Holonychus*. Com estes dados creio-me autorizado a formar uma tribo à parte, que novas descobertas, provavelmente, um dia enriquecerão de outras formas não menos estranhas... Devido ao pequeno tamanho do queixo, o gênero é *Fanerognato* no mais alto grau".

Na chave que serve para segregar a subfamília e na diagnose da mesma, conta Lacordaire no funículo apenas seis segmentos, atribuindo o sétimo à clava. Na espécie de *Dinomorphus* que possuímos, o sétimo segmento do funículo possui a mesma estrutura dos segmentos precedentes, portanto pertence ao funículo. A clava é francamente abortada, representada por pequeno cone de três segmentos estreitos, densa e curtamente pilosos, que se observam bem na preparação microscópica, e cujo conjunto, em comprimento, é subigual ao último segmento do funículo.

No exemplar de *Dinomorphus* que Lacordaire estudou e no qual baseou a subfamília atual, as tíbias são inermes na extremidade. Nos exemplares que possuímos, os três pares de tíbias são armados de dente forte recurvado no ápice, limitando a corbelha na face dianteira, e outro mais curto, na mesma face dianteira, limitando a chanfradura preapical na parte superior.

Julgamos portanto que, no característico da subfamília, o funículo poderá ser considerado como de sete segmentos, sendo a clava abortada representada por pequenos segmentos pilosos. O característico das tíbias inermes no ápice deve ser considerado apenas como caráter específico.

Gênero *Dinomorphus* Perty, 1830.

Traduzimos de Lacordaire a diagnose genérica e a descrição da única espécie, então conhecida.

"Dentes do sub-queixo de comprimento igual; o mediano agudo triangular, os laterais largos arredondados. Mandíbulas recortadas no bordo interno. Cabeça quase plana; rostro pouco mais longo e quase tão largo como a cabeça, extremamente robusto, paralelo, pouco arqueado, engrossado inferiormente para o ápice, quadrangular, plano e desigual em cima, truncado na frente; escrobos fundos, oblíquos, abertos na ponta, atingindo os olhos, unidos em baixo pelo sulco transversal. Antenas medianas; escapo em forma de cone invertido, atingindo os olhos; funículo com o segmento basal subpiriforme, pouco alongado, o segundo mais curto, obcônico; os seguintes cilíndricos, subiguais, transversais e apertados. Protórax subtransversal, convexo para a frente, estreitado para

traz, chanfrado em arco na base, curtamente tubuloso para o ápice, com o bordo anterior saliente e sinuoso; lóbulos oculares largos, assaz salientes, encobrendo parcialmente os olhos. Escudo bem nítido, arredondado. Élitros ovóides, mais largos do que o protórax, salientes no meio, ombros nulos. Patas longas, bem robustas; fêmures clavados no ápice, longamente pedunculados na base; tíbias arqueadas, diformes, comprimidas, guarnecidas externamente no meio de crista longa, chanfradas internamente no ápice, com tufo de pêlos na chanfradura; corbelhas assaz pequenas arredondadas; tarsos com o segmento basal triangular, o segundo quadrangular transversal, terceiro suborbicular, muito mais largo do que os precedentes, o quarto medíocre, como também as unhas que são grossas".

"Corpo oblongo-oval, aptero, pronunciadamente desigual, revestido de escamas".

"Perty tinha diante de si somente um desenho da única espécie do gênero e deu apenas uma descrição incompleta da espécie, que descrevemos aqui detalhadamente pela primeira vez".

"O inseto é do tamanho de *Barycerus*, e de todos os Curculionídeos o que se aproxima mais é o *Hoplitotrachelus spinolae*, do grupo dos Byrsopídeos. O protórax é coberto de tubérculos arredondados e apresenta duas grandes calosidades anteriores e sublaterais, na frente das quais vêm-se duas cristas em forma de asna. Tubérculos cônicos, misturados de asperidade, encobrem toda a superfície dos élitros, além dos quais há quatro grandes tubérculos cônicos, dispostos transversalmente nos dois terços do comprimento, dos quais os dois medianos são muito mais fortes do que os laterais.

"O aspecto desse inseto notável é absolutamente africano, entretanto é originário da província da Baía, Brasil".

Na margem da descrição específica de *Dinomorphus pime-lioides* por Perty, baseada apenas na figura, L a c o r d a i r e pondera:

"Cette figure, faite d'après un petit exemplaire, ne donne qu'une idée peu exacte de la forme et de la sculpture de l'espèce. L'unique exemplaire que j'ai sous les yeux, mais que je crois une femelle, est de moitié plus grand".

Na espécie que possuímos, os dentes do sub-queixo são pronunciadamente desiguais em comprimento, sendo o mediano sensivelmente mais longo e obtusamente arredondado no ápice; as tíbias são praticamente retas, se abstraímos da tumescência interna na base e da crista externa no meio; segmento basal dos tarsos não triangular, mas em forma de L grosso, o terceiro apenas mais largo do que os precedentes.

Esses detalhes devem ser eliminados, portanto, da diagnose genérica de *Dinomorphus*.

O gênero *Dinomorphus* cria-se na Baía em parreiras bravas, vitáceas nativas do gênero *Cissus*. Possuímos no Brasil mais de uma dezena de espécies de *Cissus*. É provável que cada espécie botânica possua sua própria espécie de *Dinomorphus*. Em nossa colheita de 93 exemplares de *Dinomorphus* na mesma espécie de *Cissus*, observamos pouca variação quanto ao tama-

nho. Ora, Lacordaire salienta que o exemplar por ele examinado, era duas vezes maior do que o de Perty... Há toda a probabilidade de tratar-se de espécies diferentes, que impressionaram os dois autores pela sua presença no continente americano, quando o lugar delas é na África, devido aos parentes que ali possuem.

De qualquer modo existe atualmente apenas *Dinomorphus pimelioides* Perty como espécie descrita. Devido às divergências que apontamos nas diagnoses da subfamília e do gênero, consideramos a nossa espécie nova, dando abaixo seus característicos.

Dinomorphus cissophagus, n. sp.

Grande, robusto, fortemente encouraçado e tuberculado, cinzento pardacento, com uma faixa difusa esbranquiçada lateralmente no pronoto, estendendo-se até os ombros dos élitros; uma pequena mácula branca difusa na linha sutural, perto da base dos élitros.

Cabeça grande, encoberta pelo protórax, fronte achatada, subdividida longitudinalmente por um sulco fino; um par de tubérculos em forma de crista no meio da altura, rodeado de mamelões menores, arredondados; outro par, mais distanciado entre si, mais embaixo, marginando os olhos, composto de tubérculos menores, arredondados. Olhos pretos, finamente granulados, estreitamente ovoidais, transversais, acuminados inferiormente, parcialmente encobertos pelo lóbulo ocular.

Rostro grosso, quase da largura da cabeça, levemente estreitado para o ápice, afundado na frente, subdividido pelo sulco mediano; arco em forma de ferradura, com as pontas para baixo na face frontal, intervalos salientes; ângulos laterais arredondados, proeminentes. Escrôbos antenais fundos, laterais, levemente arqueados, alcançando o olho no terço inferior, abrigando o escape, abruptamente quebrados em seguida, dirigidos inferiormente para o pescoço, alojando o funículo. Antenas curtas, não alcançando a metade do protórax, fortes; escape robusto, cônico, atingindo o olho, com escamas densas amarelas externamente; funículo de sete segmentos, preto, cilíndrico, subglabro, com poucos pêlos maiores e outros menores na face externa; segmentos 1 e 2 pouco mais longos do que largos, os restantes subiguais em comprimento, progressivamente mais largos, transversais; clava abortada, rudimentar, representada por um pequeno cone de três segmentos curtos e sedosos, em conjunto do

comprimento do último segmento do funículo. Mandíbulas pretas, fortes, descobertas, largas, denteadas. Dente mediano do subqueixo obtusamente arredondado no ápice, mais longo do que os laterais.

Protórax de comprimento subigual à largura, estreitado na base, mais largo no meio, com afundamento transversal perto do ápice, esboçando o colo; linha mediana pouco nítida; fortemente tuberculoso; tubérculos obtusos arredondados e pretos no ápice, intervalados pela escamosidade densa esbranquiçada tanto no pronoto como nos flancos; lóbulos oculares módicos, ciliados. Prosterno curto, com entalhe redondo no ápice; linha basal subreta. Escudo pequeno, arredondado, triangular. Élitros envolvendo o corpo, soldados na linha sutural, de configuração largamente ovoidal, ombros apagados; largura cerca de duas vezes maior do que a do protórax no meio e cerca de três vezes maior do que a base do protórax e dos élitros; fortemente tuberculosos; muitos tubérculos com a ponta dobrada em forma de gancho no sentido posterior, no ápice cônica; intervalos 3, 5 e 7 com tubérculos mais pronunciados, formando cristas interrompidas, mais pronunciadas no intervalo terceiro no terço distal; margem posteriormente mamelonada, ápice com tubérculo maior um tanto afastado da linha sutural. Asas ausentes. Coxas dianteiras contíguas. Fêmures inermes, com tubérculos esparsos finos, nodosos. Tíbias subretas, achatadas, nodosas: uma nodosidade internamente perto da base, outra em forma de carena externa no meio e a terceira no ápice, armada de fortes dentes. Tarsos fortes, transversais, face inferior transversamente mamelonada, o primeiro segmento em forma de L, o terceiro mais largo e bilobado, o quarto módico; unhas cônatas na base, subretas.

Metasterno curto, abdomen subplano, um tanto tuberoso, envolvido pelos élitros; segmentos 2-4 subiguais em comprimento. Cabeça, rosto, patas e a totalidade do corpo com escamas densas finas amarelentas, inclusive os tubérculos. Uma carreira de tubérculos cônicos, no intervalo sutural dos élitros, glabros, pretos, lustrosos.

Não se nota dimorfismo sexual.

Comprimento de 21 a 25 mm., largura nos élitros de 10 a 14 mm., antena, inclusive o escapo, 4,5 mm.

Descrito sobre 93 espécimens, coletados pelo autor em *Cissus* sp., Vitaceae, no morro calcáreo de Bom Jesus da Lapa, Estado da Baía, em Outubro de 1947.

Cótipos na coleção do autor, na Escola Nacional de Agro-

nomia, Rio de Janeiro, no Chicago Natural History Museum, no Imperial Institute of Entomology, London e Museum d'Histoire Naturelle, Paris.

Difere de *Dinomorphus pimelioides* Perty pelos dentes do subqueixo desiguais, tíbias retas armadas no ápice, base do prótorax subreta.

Agradecemos ao prezado amigo Dr. Ângelo da Costa Lima, Professor da Escola Nacional de Agronomia, o valioso auxílio que nos prestou na identificação genérica e posição sistemática da nossa espécie.



Fig 1 Cepas novas de *Cissus* sp, nas quais foram depositados externamente os ovos de *Dinomorphus cissophagus* n. sp, protegidos pela camada de fitinhas aglutinadas da casca — Fig 2 Cepa de *Cissus* sp, no começo da formação da zooecidia pela presença da larva — Fig 3 Zooecidia um ano depois, nela se criaram três insetos furo de saída do adulto dois outros furos do lado oposto — Fig 4 *Dinomorphus cissophagus* em várias posições (Foto Bondar)

Dados Biológicos.

No mês de Outubro, com as chuvas do verão, *Cissus* sp. emite viçosas cepas novas. Os adultos do inseto alimentam-se nelas, comendo a casca e os botões. No lenho novo, nas feridas com a casca retirada, a fêmea gruda externamente de um a três ovos em cada grupo. Os ovos são brancos, elípticos, medindo de 3,6 a 4 mm. de comprimento, sobre 1,8 mm. de largura. A fêmea encobre os ovos com fibras de casca, aglutinados em montículos de cerca de 10 mm. de comprimento sobre 6,7 mm. de largura. Após poucos dias as larvas nascem, e en-

terram-se na parte medular da cepa. A presença de larvas excita os tecidos que engrossam, afluindo a seiva para alimentar as larvas. Estas fazem pouco movimento e, no seu ciclo evolutivo que é anual, exploram apenas cerca de 4 a 5 cm. do comprimento da cepa, engrossada em zooecídia. Terminado o crescimento, as larvas transformaram-se em ninfas e adultos na mesma galha. Um ano depois, aproximando-se as chuvas, os adultos abrem furos circulares nas zooecídias, estando as cepas exploradas quase sempre mortas nesta ocasião. Começa então novo ciclo evolutivo.

Numa zooecídia criam-se de 1 a 3 adultos, tendo o engrossamento da cepa de 6 a 13 cm. em comprimento, desde o local da desova até o último furo de saída, na parte superior da zooecídia.

Examinando as zooecídias internamente, verifica-se que há poucos detritos da digestão da larva e que as paredes internas dos abrigos são pouco roídas, o que indica que as larvas se criam à custa da seiva que afluí e não comendo o lenho.

Os hábitos dos adultos são noturnos e matinais. Nas horas de sol acham-se abrigados na sombra de folhas, fortemente agarrados às cepas.

A espécie, evidentemente, poderá adaptar-se ao gênero *Vitis* que é afim, causando transtorno à viticultura.

E' provável que nas diversas espécies do gênero *Cissus* poderão ser descobertas outras espécies de *Dinomorphus*.

Interesse Zoo-geográfico.

Já L a c o r d a i r e estranhou a presença, no Brasil, de um Curculionídeo tipicamente africano. Geralmente, os insetos brasileiros dessa família são voadores. A nossa espécie é aptera, pedestre. Na África existem numerosos Curculionídeos apteros. A redução das antenas, com a clava abortada ou reduzida ao mínimo, verifica-se em várias subfamílias africanas, mas não nas brasileiras. Tudo indica que o gênero *Dinomorphus* é de parentesco africano. Representa um dos mais antigos grupos de Curculionídeos do globo terrestre.

Afirmam os geólogos que o continente americano afastou-se do conjunto europeu-africano no Cretáceo inferior. Naqueles tempos longínquos a família botânica de Vitáceas já existia evoluída, detalhando-se depois em atuais gêneros e espécies.

Seria de máximo interesse verificar quais as famílias botânicas em que se criam na África os parentes de *Dinomorphus*, as

subfamílias africanas apteras, especialmente as tribos de Lacordaire: "Microcerides" e "Brachycerides".

II. Subfamília Pyropinae (Col. Curc.)

Na segunda legião dos "Curculionides phanérogathes", na segunda coorte dos Apostasimerídeos, Curculionídeos de coxas posteriores distanciadas, na primeira falange de clava antenal articulada, na secção A de epímeros torácicos não ascendentes, isolou Lacordaire a tribo "Pyropides", com antenas coto-veladas, mesosterno não canaliculado, unido pela superfície contínua com pro e metasterno, rostro medíocre e mesosterno reduzido a estreita faixa transversal, corpo curto-oval, convexo.

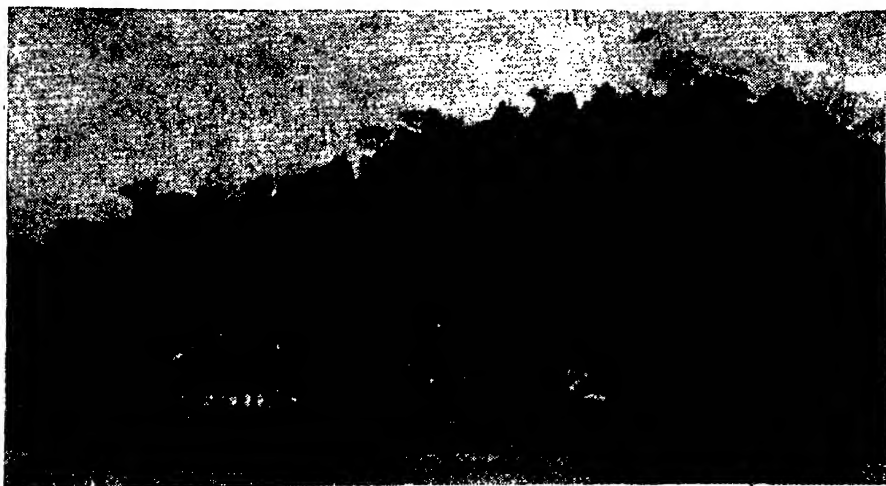


Fig. 5. Morro calcáreo em Bom Jesus da Lapa, onde prospera a Vitácea *Cissus* sp., hospedeira de *Dinomorphus cissophagus* n. sp. (Foto Bondar).

A. Klima, em 1936, elevou a tribo à categoria de subfamília, abrangendo dois gêneros, com o total de 4 espécies, todas americanas.

A subfamília evoluiu no novo continente e, a nós parece, poderá ser numerosa no Brasil, com estudos mais apurados dos nossos pequenos curculionídeos em plantas Dicotiledôneas.

Traduzimos de Lacordaire a descrição da subfamília e dos dois gêneros antigos e incluímos espécies novas.

"Rostro medíocre, cilíndrico, pouco robusto, arqueado, escrobos rapidamente inferiores, pouco visíveis lateralmente. Antenas medíocres, finas, funículo de sete (7) segmentos. Protórax com carena lateral, separando o pronoto dos flancos; prosterno plano, inteiro para a frente, variando em largura entre as coxas dianteiras, formando com meso e

metasterno uma superfície contínua; mesosterno reduzido a estreita faixa transversal. Um escudo. Élitros deixando descoberta pequena porção do pigídio. Coxas dianteiras globosas, pouco salientes; fêmures e tíbias inermes na extremidade, unhas apendiculadas. Os três segmentos abdominais subiguais, o segundo largamente arqueado no bordo posterior, envolvendo parcialmente o 3.º, unido ao 1.º e separado deste por uma soldadura reta. Metasterno curto, seus epímeros retos. Corpo curto, oval ou oblongo-oval".

"Dos dois gêneros que constituem a tribo, um (*Craspedotus*) figura nos Cholinae de Schoenh., outro (*Pyropus*) nos "Baridiides", entre *Madarus* e *Baridius*. Os dois possuem a mesma organização e diferem somente pela largura do prosterno entre as coxas dianteiras; o resto é construído pelo mesmo plano.

"Essa organização é próxima da dos dois últimos gêneros, principalmente pelos esternitos torácicos, que são análogos à maioria dos Madarides. Consequentemente, perto destes últimos esses insetos deveriam ser colocados, se não fosse o pequeno tamanho dos epímeros mesotorácicos, o que obriga à separação. São espécies pequenas, próprias da América".

I. Prosterno bem largo entre as coxas dianteiras: *Pyropus*.

II. Prosterno estreito entre as coxas dianteiras: *Craspedotus*.

Gênero *Pyropus* Schoenh. 1836

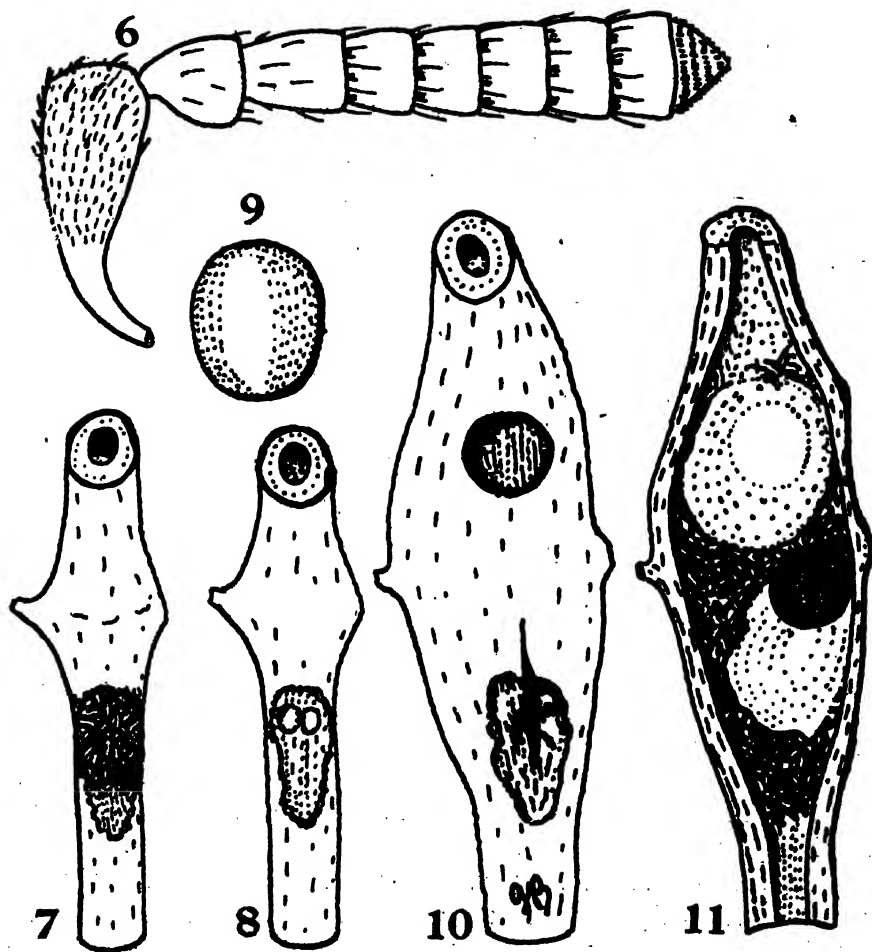
"Muito pequeno, globoso; rostro fino; antenas medianas, medíocres; escapo clavado no ápice, atingindo o olho; funículo com o segmento 1.º alongado, 2-7 curtos, apertados, progressivamente maiores; clava oval, acuminada, articulada, olhos pequenos, deprimidos, ovais, transversais. Protórax transversal, convexo, lados retos na base, arredondado-estreitados em seguida, base parabólica de cada lado; lóbulo mediano pronunciado; prosterno largo entre as coxas dianteiras. Escudo minúsculo, triangular. Élitros mediocrementemente convexos, regularmente ovais, não mais largos do que a base do pronoto, ombros nulos. Patas curtas, fêmures robustos, clavados; tíbias retas, tarsos curtos, um tanto largos, esponjosos embaixo, segmento 1.º minúsculo e 4.º medíocre; unhas pequenas arqueadas, divergentes. Pigídio pequeno em forma de triângulo curvilíneo transversal; segmentos abdominais 3 e 4 curtamente angulosos lateralmente; saliência intercoxal larga, arredondada na frente. Corpo curto, oval, glabro".

Conheceu L a c o r d a i r e a espécie *Pyropus cyaneus* Herbst 1795, originária de Cuba. Posteriormente foram adicionados *P. sapphirinus* Gyll., 1836, de Cuba e Jamaica e *P. pusillus* Pas., 1881, de Jamaica. Não se conhece a biologia. Desconhecemos o gênero no Brasil.

Gênero *Craspedotus* Sch. 1844

"Cabeça pequena, pouco alongada, rostro pouco mais longo do que a cabeça, pouco robusto; os escrobos começam no meio. Antenas medianas, curtas, pouco robustas; escapo clavado e levemente arqueado no ápice; funículo com o segmento 1.º obcônico, alongado e um tanto grosso, 2.º da mesma forma, fino e curto; 3-6 transversais, comprimidos, progressivamente alargados, 6.º contíguo à clava; clava grossa, oval-obtusa,

pouco articulada; 1.º segmento grande. Olhos mediocres, deprimidos, ovais, transversais. Protórax pouco convexo, transversal, estreitado para a frente, obliquo em cada lado na base e com lóbulo mediano grande, arredondado; prosterno estreito entre as coxas dianteiras, dilatado atrás em placa triangular. Escudo cuneiforme. Élitros largos, pouco convexos, subtriangulares, finamente marginados lateralmente, pouco mais largos



Dinomorphus cissophagus, n. sp.

Fig. 6. Escapo, funículo e clava da antena. — Fig. 7. Ovos postos na cepa nova de *Cissus* sp., protegidos pela cobertura. — Fig. 8. Ovos descobertos, depois de tirar a cobertura. — Fig. 9. Ovo isolado, com aumento maior. — Fig. 10. Zoocecidia ao cabo de um ano, mostrando o ponto da desova e o furo de saída do adulto. — Fig. 11. A mesma zoocecidia em corte tangencial, mostrando os alojamentos de dois indivíduos que já emigraram. (Bondar del.)

do que o protórax, escavados na base; ombros obliquos, não salientes. Patas curtas, fêmures progressivamente clavados; tíbias retas; tarsos curtos e estreitos, segmento 4.º pequeno; unhas divergentes. Pigídeo como em *Pyropus*, às vezes encoberto; segmentos abdominais 3 e 4 retos no bordo posterior; saliência intercoxal grande, arredondada na frente, corpo quadrado-oval, glabro.

"O gênero abrange uma espécie *C. pullus* Sch., do Brasil. E' de pequeno porte e varia de preto a ferrugíneo-uniforme, porém há exemplares que oferecem mistura dessas duas cores".

Considerações sobre *Craspedotus*. — Na diagnose da subfamília Pyropinae, descreve Lacordaire o funículo de 7 segmentos. No gênero *Craspedotus* menciona apenas 6 segmentos no funículo e assim mesmo o 6.º fazendo parte da clava. Nas três espécies que possuímos, o funículo é francamente de 6 segmentos. Na caracterização da subfamília figuram também o esterno unido e unhas apendiculadas. Nas nossas três espécies de *Craspedotus*, o prosterno é separado do mesosterno por um sulco divisório e as unhas são simples, o apêndice aparece como pequeno mamelão na base da unha, sem formar gancho.

Posição Filogenética dos Pyropinae

Lacordaire aproxima os Pyropinae da subfamília Barinae, tribo Madarini, devido aos anéis do esterno unidos. Desde aquele tempo, a classificação dos Barinae sofreu uma transformação radical, com a introdução de novos gêneros e espécies. Na fase atual dos nossos conhecimentos sobre o assunto, julgamos que os Pyropinae derivam da tribo Barini, possuindo um pigídio descoberto e criando-se em Dicotiledôneas. O único característico que separa os Pyropinae dos Barinae, são os epímeros mesotorácicos não ascendentes. Outro bom característico dos Pyropinae é a carena lateral do protórax, separando o pronoto dos flancos. Neste particular, nos Barini o gênero mais vizinho é *Brachybaris*, com o rostro e corpo semelhantes a *Craspedotus*, carena nítida lateralmente no protórax, separando o pronoto dos flancos, porém com epímeros mesotorácicos ascendentes e funículo de sete segmentos.

Tomando-se em consideração as particularidades acima expostas, o grupo Pyropinae poderia figurar na subfamília Barinae como Barini aberrantes, reduzindo assim o número de subfamílias.

Craspedotus psychotriae (Bond), nov. comb.

Em "Notas Entomológicas da Baía, XVII", instituímos novo gênero e espécie *Abrachybaris psychotriae* Bondar, na tribo Barini. Submetida a espécie à apreciação de A. Hustache, este a considera como Pyropinae, do gênero *Craspedotus*. A este gênero, até agora monotípico, adicionamos portanto a nossa espécie *Craspedotus psychotriae* (Bond.), sendo nulo o gênero *Abrachybaris*. Descrevemos duas espécies novas.

Craspedotus similis, n. sp.

Castanho-escuro; rostro, antenas, cabeça, lados do pronoto, margem lateral dos élitros e patas, vermelho-amarelados; olhos pretos. Glabro, lustroso.

Fêmea. Rostro cilíndrico, liso, levemente arqueado, pouco mais curto do que o pronoto, escrobos rapidamente inferiores; escapo fortemente clavado no ápice, atingindo o olho; funículo de seis segmentos, primeiro segmento grosso, da grossura da clava do escapo, pouco mais longo do que largo, quase da metade do comprimento do restante do funículo; segmentos 2-6 progressivamente mais largos, transversais; clava grande, unida, do comprimento dos segmentos 2-6 juntos, pilosa. Cabeça lisa, com pontos finos distantes. Pronoto arredondado, triangular, liso, com pontos finos esparsos. Escudo curvilíneo triangular, côncavo no meio.

Élitros lisos, finamente estriados, estrias com covinhas circulares finas, intervalos com pontilhação finíssima distanciada em carreira irregular, vista ao microscópio por transparência. As covinhas nas estrias, no exame microscópico, apresentam aréolos mais largos do que os intervalos. Pigídio francamente descoberto, semicircular, ruivo, densamente pontilhado. Carena lateral do protórax e élitros lisa, ruiva.

Face ventral densa e fundamente covinhada. Prosterno plano, separado do mesosterno; duas carenas finas, partindo dos lados do pescoço convergem em ângulo para o espaço intercoxal. Anéis 3 e 4 do abdomen arqueados, angulosos lateralmente como nos Barinae, diferindo da diagnose genérica. Fêmures engrossados, não clavados, tíbias lineares; tarsos subiguais em comprimento.

Macho. Difere pelo rostro um tanto mais curto e grosso, cônico na base.

Comprimento: 3 mm., largura 1,7 mm.

Descrito sobre 27 espécimens, machos e fêmeas, coletados pelo autor no município de Belmonte, Baía, em Crucifera herbácea nativa, alimentando-se nas folhas.

A espécie, pelo tamanho e esculturação, é semelhante a *Craspedotus psychotriæ*, divergindo pela biologia, colorido mais carregado, pontilhação nas estrias dos élitros um tanto mais distanciadas e os aréolos, vistos ao microscópio, maiores, mais separados em carreiras.

Cótipos na coleção do autor, no Chicago Natural History Museum e na Escola Nacional de Agronomia, Rio.

Craspedotus trapidá, n. sp.

De cor preta uniforme, antenas e patas amarelas, o rosto e as vezes os flancos do prosterno arruivado-escuros. Glabro, um tanto luzente.

Fêmea. Rostro subreto, cilíndrico, pouco mais curto do que o pronoto. Antenas medianas, funículo de 6 segmentos, o primeiro engrossado, 2-6 curtos, em conjunto do comprimento da clava globosa cônica. Olhos grandes, salientes, distanciados na frente por um espaço menor que a largura do rosto. Cabeça densa e finamente pontilhada, opaca. Pronoto com pontuação circular densa, subopaco. Élitros finamente estriados, estrias covinhadas, no intervalo uma carreira regular de pontilhação fina, distanciada, vista por transparência ao microscópio. Pigídio francamente exposto, semicircular, densamente covinhado e com minúscula pilosidade prateada, esparsa. Face ventral densamente covinhada. Tibias com pequeno esporão no ápice. Tarsos subiguais em comprimento, anéis do abdômen 3 e 4 retos no bordo posterior.

Macho. Difere pelo rosto mais curto e rugoso, mais densamente colorido.

Compr. 1,8 mm., largura 1 mm.

Descrito sobre 45 espécimens, machos e fêmeas, coletados pelo autor em Dezembro de 1946, no Município de Tucano, Baía, em folhas de "trapidá", árvore da família das Euforbiáceas (?). O adulto alimenta-se nas folhas, roendo superficialmente a epiderme nas duas faces da folha, e fazendo um furo arredondado no meio da mácula afetada, furo que serve para comunicação entre as duas faces da folha. O adulto abriga-se no furo, visto igualmente dos dois lados da folha.

Cótipos na coleção do autor, no Chicago Natural History Museum e na Escola Nacional de Agronomia, Rio.

III. Subfamília Barinae Casey (Col. Curc.)

A) Baríneos em Plantas Dicotiledôneas.

Dando sistema puramente morfológico a numerosas formas de Curculionídeos, na subtribo "Baridiídes vrais" formou Laccordaire o "Groupe II. Eurhinides", abrangendo três gêneros.

Casey (1922) reformou a sistemática dos Baríneos, criando a tribo Eurhinini, dando-lhe a posição entre Centrinini e Barini, abrangendo três gêneros: *Eurhinus*, *Eurhinopsis* e *Barycerus*.

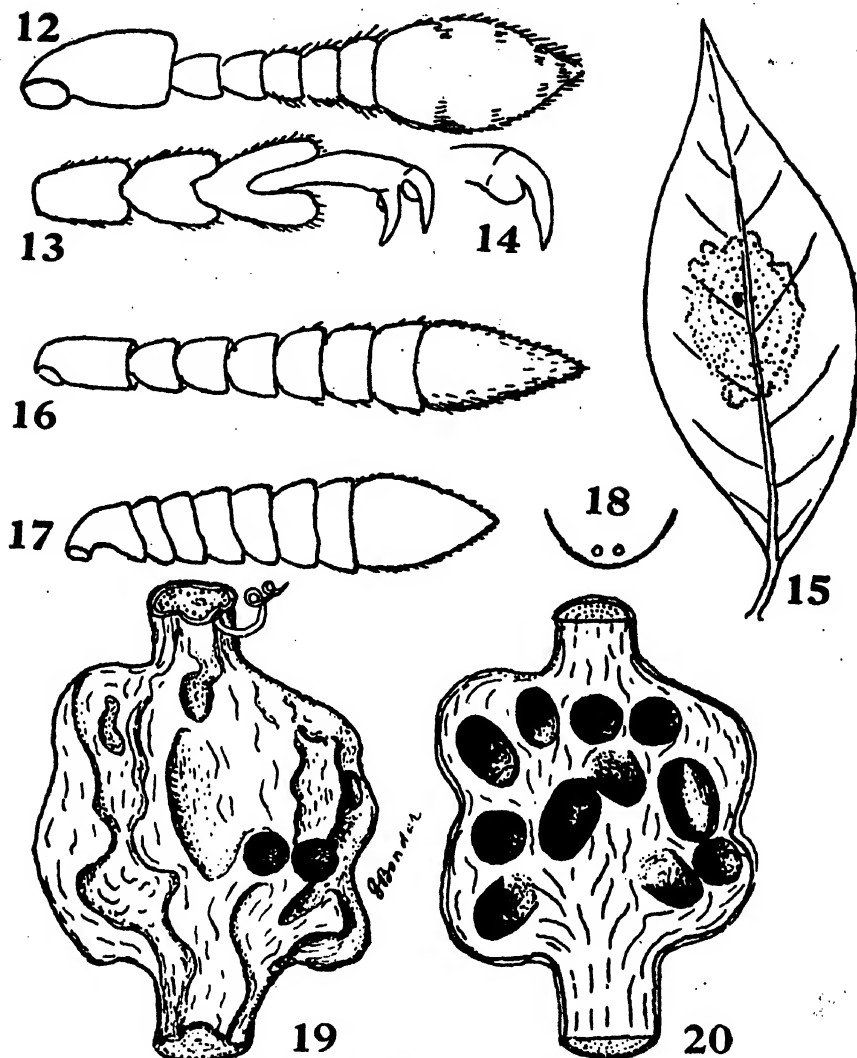


Fig. 12. *Craspedotus similis* n. sp., antena. — Fig. 13. Idem, tarsos. — Fig. 14. Unha. — Fig. 15. *Craspedotus trapid* n. sp.; folha de trapid com mácula da epiderme carcomida pelo inseto e furo de comunicação entre as duas faces da folha. — Fig. 16. *Eurhinus heringeri* n. sp., antena. — Fig. 17. *Eurhinus splendidus* n. sp., antena. — Fig. 18. Idem, ápice do abdomen, com duas covinhas na face ventral dos machos. — Fig. 19. Zooecidia no caule de *Cissus cleyoides*, provocada pelo parasitismo de larvas de *Eurhinus splendidus*; dois orifícios circulares de saída dos adultos. — Fig. 20. A mesma zooecidia em corte longitudinal, mostrando os alojamentos de larvas e adultos.

Hustache, elaborando o "Coleopterorum Catalogus, Pars 163, Curculionidae: Barinae" (1938) rebaixou o agrupamento, considerando-o apenas como subtribo Eurhinina na tribo maior, Barini.

A nossa intenção no estudo de Curculionídeos é de alicerçar

a atual sistemática morfológica com dados biológicos, agrupando especialmente os Baríneos pelas subdivisões botânicas Mono e Dicotiledôneas nas quais evoluem, e ainda, quando possível, fixar tribos, gêneros e espécies entomológicas de acordo com as famílias, gêneros e espécies botânicas nas quais se criam. E' o único meio de introduzir clareza e compreensão no complexo da subfamília.

No caso dos Eurhinina, nem Casey, nem Hustache possuíam dados biológicos sobre nenhuma espécie. Já nos escritos anteriores procuramos provar que a tribo Barini cria-se exclusivamente em plantas Dicotiledôneas. São Baríneos filogeneticamente evoluídos.

Na atual contribuição, concordando com Hustache na inclusão dos Eurhinina na tribo Barini, pretendemos provar que a subtribo se cria exclusivamente em Dicotiledôneas da família de Vitáceas, cujo único gênero brasileiro é *Cissus*, com numerosas espécies. Na América Central existe o gênero *Vitis*. Eis a razão da distribuição geográfica da subtribo Eurhinina, que Lacordaire assim definiu:

"Rostro robusto, comprimido na maior parte do comprimento. Antenas mais ou menos curtas e robustas, clava grande. Prosterno canaliculado ou não, prolongado pelo lóbulo postcoxal, que encobre mais ou menos o mesosterno. O mesosterno, quando visível, forma com os prosterno e metasterno uma superfície contínua. Pigídio descoberto".

A esta definição podemos adicionar que nos três gêneros que atualmente compõem a subtribo, o corpo é glabro, lustroso, geralmente de brilho metálico. A fronte é afundada. O prosterno e mesosterno são frequentemente separados por um sulco diivsório.

Em toda a numerosa Legião dos Curculionídeos Phanerognatha a subtribo Eurhinina destaca-se pela beleza do corpo glabro, liso, brilhante, de reflexo metálico verde, cúpreo, bronzeado, azul, purpúreo, vinháceo, etc., em diversas modalidades e combinações. São verdadeiras jóias da natureza. Exceção representa o gênero *Barycerus* que, provavelmente, possui outra biologia e não pertence ao grupo.

Os três gêneros podem ser assim diferenciados:

1. Unhas dos tarsos cônatas 2
— Unhas dos tarsos livres. Corpo oblongo-oval, rostro curto e grosso; antenas medianas, grossas; escultura fina, esparsa no dorso.
Barycerus
2. Funiculo antenal gradualmente engrossado, subigual no ápice à largura da clava; clava curta, cônica, corpo pouco esculturado.
Eurhinus

— Funiculo muito mais fino, clava mais alongada, corpo menor, nitidamente esculpado; rostro mais curto e grosso..... *Eurhinopsis*

Limitamos a presente contribuição ao estudo do gênero *Eurhinus*, o mais numeroso em espécies e do qual possuímos dados biológicos. A diagnose genérica de Lacordaire é a seguinte:

Gênero *Eurhinus* Sch. 1826

"Mach o. Rostro assaz longo, robusto, quadrangular, arredondado nos ângulos em baixo; escrobos postmedianos, às vezes preapicais. Antenas curtas, robustas; escapo gradativamente engrossado, comprimido, não atingindo o olho; segmento basal do funículo obcônico, pouco alongado; 3-7 bem curtos, juntos, transversais, progressivamente engrossados; segmento 7 fazendo parte da clava; clava grande, subcônica, compacta, aveludada. Olhos grandes, oblongo-ovais, transversais. Protórax subtransversal, pronunciadamente convexo, lados retos na base, arredondados em seguida e fortemente estreitados, formando um colo, afundado na base; base bisinuada, lóbulo basal largo, saliente, arredondado ou truncado na ponta; prosterno com sulco pronunciado e largo, terminado entre as coxas dianteiras; lóbulo basal do prosterno encobrindo fortemente o mesosterno. Escudo grande, cordiforme, às vezes transversal. Élitros curtos, pouco convexos, triangulares, arredondados isoladamente no ápice, não mais largos do que o protórax, porém com saliência lateral formando um ombro obtuso cônico ou arredondado. Patas mediocres, robustas; fêmures sublineares; tíbias comprimidas, quase retas, mucronadas no ápice; tarsos mediocres, mais ou menos largos, esponjosos em baixo; unhas pequenas, cônatas. Pigídio descoberto em forma de triângulo curvilíneo. Os três segmentos intermediários do abdomen fortemente arqueados, angulosos nas pontas; o primeiro separado do segundo por uma soldura nítida. Metasterno curto, episterno largo. Mesosterno curto e largo. Corpo romboidal, glabro, brilhante.

Fêmea. Difere pelo rostro um pouco mais longo, antenas menos robustas e tarsos mais estreitos".

Presentemente se conhecem 27 espécies, distribuídas do México até a Argentina. Treze espécies pertencem à fauna brasileira.

Possuímos dez espécies, das quais conseguimos identificar algumas pela chave de Casey. Três consideramos novas.

Eurhinus heringeri, n. sp.

Grande. De verde-claro bronzeado a verde-azulado-metálico uniforme; antenas, tarsos e ápice do rostro pretos. Corpo alongado romboidal, pouco esculpado. Espécie linda pelo colorido e brilho.

Machos. Rostro do comprimento do pronoto, arredondado-quadrangular, forte, liso, com pontuação fina esparsa, lados côncavos em sentido longitudinal na metade basal. Antenas no quarto apical, pretas, glabras; clava castanha, aveludada; escapo reto, engrossado na segunda metade; primeiro segmento do funículo cilíndrico, de um quarto mais longo do que largo; 2-7 progressivamente mais largos e transversais, subiguais em comprimento; sétimo da grossura da clava; clava cônica, unida, aveludada. Cabeça lisa, pontilhação finíssima, distante; fronte largamente afundada, prolongando-se a cova na base do rostro em sulco longitudinal largo e razo. Pronoto campanulado, convexo, bruscamente tubulado no ápice, liso, pontilhação fina, esparsa. Escudo concolor, triangular, transversal, liso. Élitros subtriangulares, lados salientes, angulosos atrás do ombro; estrias finíssimas, superficiais, esparsamente pontilhadas; perto da base, porém, distante do bordo, há um forte afundamento irregular, abrangendo as estrias 2 e 3. Pigídio concolor, com covinhas densas circulares, semicircular, marginado posteriormente por uma carena. Face ventral pronunciadamente covinhada. Prosterno largamente canaliculado; prolongamento post-coxal côncavo. Quinto segmento abdominal com duas covinhas próximas, forradas de escamas amarelas que, rodeando o bordo, formam uma única mácula amarela, mais larga do que longa. Fêmures lineares, tíbias levemente arqueadas. Tarso basal pequeno, triangular; artículos 2 e 3 largos, transversais, bilobados.

Fêmeas: difere pelo tamanho maior, corpo mais arredondado, rostro pouco mais fino, preto no terço apical, antenas no segundo terço. Patas um tanto mais curtas, especialmente as dianteiras, quinto segmento do abdomen com o bordo revirado para baixo e desprovido de covinhas.

Compr. 7 a 9 mm., largura 4,6 a 6 mm.

Descrito sobre 5 machos e 9 fêmeas, recebidos do Dr. Ezequias Heringer, Estado de Minas Gerais, criados em zooecídias e apanhados em 25.9.46 em flores, alimentando-se na Vitácea *Cissus cicyoides* L., no caule da qual foi colhida a zooecídia, no sul do Estado de Minas.

E' ao nosso dedicado correspondente Dr. Heringer que dedicamos a espécie, em homenagem da descoberta da biologia dos Eurhinina, aliás seguindo a nossa orientação no caso.

Cótipos na coleção do autor, na Escola Nacional de Agronomia, Rio de Janeiro, e no Chicago Natural History Museum.

Pelo colorido geral e prolongamento postcoxal afundado do prosterno a espécie aproxima-se de *E. cavilobus* Casey, descrito do México. Difere pelo tamanho maior, ausência de lustre cúpreo no rosto e nas patas, antenas e tarsos pretos, afundamento nos élitros 2 e 3 afastados do bordo, covinha dupla no quinto segmento abdominal do macho, forrada de escamas amarelas, quando em *E. cavilobus* a covinha abdominal é única e desnudada.

Eurhinus splendidus, n. sp.

Tamanho acima do médio. Colorido cúpreo-purpúreo-vinháceo, de brilho metálico; ápice do rosto, canal do prosterno e anéis abdominais verde-metálicos; funículo das antenas preto-azulado; clava castanho-escura; patas azul-escuras. Corpo longo-romboidal.

M a c h o. Rosto grosso, quadrangular, mais curto do que o pronoto, base sulcada lateralmente. Antenas preapicais, escrobo fundo e em declive rápido; funículo largo, curto, grosso; segmento basal triangular; segmentos 2-7 fortemente transversais, progressivamente alargados, segmentos 2 e 7 um tanto mais curtos; clava cônica, não mais larga do que o ápice do funículo. Cabeça lisa, pontilhação finíssima; afundamento na fronte bifurcado em baixo pela saliência da base do rosto. Prosterno campanulado, bruscamente tubuloso, liso, brilhante, pontilhação pouco aparente; bordo apical do lóbulo basal azulado. Escudo pequeno, inflexo, triangular. Élitros arredondado-triangulares; estria sutural mais impressa; as restantes superficiais, marcadas por covinhas lineares pequenas; saliência lateral obtuso-angulosa; base dos élitros inflexa; sulcos curtos e fundos na base das estrias 2 e 3, alcançando o bordo. Pigídio azul, arredondado no bordo posterior, densamente covinhado. Prosterno com canal largo e raso; o lóbulo basal forma dois mamelões separados por um sulco fundo e estreito. No quinto anel do abdomen há duas covinhas circulares de bordos salientes e com feixe de pêlos pretos, formando duas colunas proeminentes, separadas por espaço maior do que o seu diâmetro, perto do bordo posterior.

F ê m e a. Difere pelo rosto pouco mais fino, do compri-

mento do pronoto, azul no terço apical; antenas no terço distal; quinto segmento do abdomen com bordo dobrado para baixo e sem covinhas.

Comprimento de 6 a 8 mm., largura de 4 a 5,3 mm.

Descrito sobre 13 machos e 11 fêmeas, recebidos de Ezequias Heringer sob o n.º 993 e, na maioria, extraídos na Baía, em Abril de 1946, de uma zoocecídia em haste da Vitácea *Cissus cicyoides* L., coletada por Heringer no Estado de Minas.

Cótipos na coleção do autor, na Escola Nacional de Agronomia, Rio de Janeiro, e no Chicago Natural History Museum.

A espécie difere das demais, descritas do gênero, pelo colorido e combinação de outros caracterês.

Eurhinus azureatus Casey

Recebemos esta espécie sob o n.º 991. O material foi coletado no sul do Estado de Minas em *Cissus salutaris* N. B. R., nas folhas da qual o inseto se alimenta. Evolui, provavelmente, no caule da mesma, formando galhas.

Eurhinus willinki, n. sp.

De colorido uniforme vinháceo-escuro; face inferior, rostro, pigídio, patas e tarsos cúpreos; antenas pretas, clava castanha. Tamanho módico, romboidal.

M a c h o. Rostro do comprimento do pronoto; arredondado, densamente rugoso-covinhado nos lados, liso na frente, arqueado. Antenas no quarto apical, funículo grosso. Cabeça pronunciadamente pontilhada, fronte com afundamento largo e razo, não afetando a base do rostro. Pronoto campanulado, bruscamente tubuloso, pontilhado, lóbulo basal covinhado, truncado no ápice. Escudo triangular, covinhado. Élitros subtriangulares; saliência lateral no ombro caloso arredondada, dorso achatado; base dos élitros afundada; estria sutural mais pronunciada; as restantes finas, superficiais no dorso, bem impressas no terço apical; estrias 2 e 3 com pequeno sulco curto na base dos élitros. Pigídio densamente covinhado, arredondado posteriormente; um pequeno mamelão proeminente no meio do bordo posterior carenado. Face ventral densamente covinhada; prosterno largamente canaliculado, penetrando no sulco do lóbulo postcoxal, subdividindo este em duas saliências laterais; bordo posterior reto, separado do mesosterno. No quinto anel abdominal duas covinhas circulares,

cônatas lateralmente, forradas no fundo com pilosidade preta, formando feixes salientes na superfície.

Comprimento 5 mm., largura 3,2 mm.

Descrito sobre 2 machos, coletados em 21.1.1945 e recebidos, sob os nos. 2564 e 2565, do Dr. Abraham Willink, Tucumán, Argentina. E' a este nosso correspondente que dedicamos a espécie.

Cótipos na coleção do autor.

Pela chave específica de *Eurhinus*, elaborada por Casey, a espécie pertence à subdivisão de espécies com ombros salientes, machos com covinha dupla no quinto anel abdominal, estrias 2 e 3 nos élitros sulcadas na base. Nesse agrupamento não há nenhuma espécie que possa ser confundida com *E. willinki*. E' a segunda espécie descrita da Argentina. A primeira é *Eurhinus argentinensis* Hust., espécie azul, que possuímos em nossa coleção.

Considerações Biológicas.

Com a descoberta das espécies novas *Eurhinus heringeri* e *E. splendidus*, ambas criadas de galhas nas hastes da Vitácea *Cissus cicyoides* L., consideramos resolvido o enigma da biologia dos Eurhinina. A espécie *Eurhinus azureatus* Casey, apanhada nas folhas de *Cissus salutaris*, nas quais se alimenta, comprova a dedução. Podemos afirmar que todas as espécies de *Eurhinus* se criam exclusivamente em galhas provocadas nos caules das Vitáceas americanas; daí a sua distribuição geográfica. No Brasil a família das Vitáceas é representada apenas pelo gênero *Cissus*. Em outros Países mais para o norte, além de *Cissus*, existem diversas espécies indígenas de *Vitis*. E' provável que este gênero seja também hospedeiro de Eurhinina.

Em cada espécie botânica podem criar-se diversas espécies de *Eurhinus*, como provam as duas espécies novas. Cada espécie, porém, faz sua própria galha, e em zoocécidas encontradas no mesmo pé de planta podem encontrar-se esta ou aquela espécie de *Eurhinus*, mas nunca ambas juntas. As larvas diferem também pelo colorido, como Heringer testemunha. A presença de ovos ou larvas dentro do caule provoca evidentemente irritação dos tecidos, que ficam hipertrofiados. As larvas alimentam-se da seiva que aflui, sem roer os tecidos, a não ser para alargar a cripta onde se alojam. Numa só galha encontramos mais de uma dúzia de adultos, dentro de células de 7 mm. de menor diâmetro e com 1 a 12 mm. de comprimento, sem nenhum vestígio de tecidos roídos ou canais abertos por larvas. E' que a larva não come o lenho, mas se alimenta da seiva que aflui. Biologia semelhante verificamos no Cryptorrhynchíneo *Collabismus clitellae* Boh., criando-se em hastes de *Solanum grandiflorum*.

O gênero *Eurhinopsis* Champ. 1906 abrange 10 espécies, distribuídas desde o México até a Argentina. Existe pouca diferença morfológica entre este gênero e *Eurhinus*. Possui os mesmos brilhos metálicos. A biologia, provavelmente, é análoga, criando-se em Vitáceas.

Os representantes da subtribo Eurhinina, em geral, são raros nas coleções. Durante mais de trinta anos de prática entomológica coletamos apenas dois exemplares.

Presentemente, com o conhecimento da biologia, convém investigar detalhadamente as nossas videiras ou parreiras bravas. Há probabilidade que poderemos descobrir ainda muitas novidades e enriquecer coleções públicas e particulares com essas magníficas jóias da natureza.

Não obstante o gênero *Cissus* ser próximo de *Vitis*, *Eurhinus* ainda não foi observado como praga dos vinhedos no Brasil.

B) Baríneos em Plantas Monocotiledôneas.

a) Centrinini em Marantáceas.

Gênero *Linonotus* Casey.

Em "Notas Entomológicas da Baía, XII" divulgamos várias espécies novas deste lindo gênero, e acrescentamos uma chave para reconhecimento das espécies até então conhecidas. Aproveitando a mesma chave específica, adicionamos algumas espécies novas. Na IIIª subdivisão: "pronoto com apenas duas faixas marginais oblíquas douradas", na alínea: "élitros com apenas o quarto intervalo colorido", introduzimos:

Linonotus justus, n. sp.

Preto, densamente esculpado, opaco, com pêlos finos esparsos; estreita faixa submarginal no pronoto, continuada, com pequena disjunção, no quarto intervalo dos élitros, sem atingir o ápice, amarelo-esbranquiçada. No lado ventral há pilosidade amarelo-esbranquiçada no epímero metatorácico e, lateralmente, nos segmentos abdominais e no centro do abdomen.

Fêmea. Rostro mais longo do que a cabeça e pronoto juntos, fino, arqueado, pouco covinhado. Antenas arruivadas, antemedianas. Pronoto densamente covinhado, linha mediana lisa, um tanto saliente; lado ventral denso e finamente covinhado, com pêlos finos esparsos curtos.

Compr. de 6,5 a 8 mm., largura de 3,4 a 4 mm.

Descrito sobre 3 fêmeas, das quais duas recebidas de A. Maller, Corupá, S. Catarina, e uma, sob n.º 1254, de Filipe Justus Junior, Ponta Grossa, Paraná. E' a este nosso correspondente que dedicamos a espécie.

Cótipos na coleção do autor.

A espécie difere de *L. westwoodi* pelo colorido e distribuição das máculas.

Linonotus orlandoi, n. sp.

Preto, densamente esculpado, com escamas curtas esparsas, semi-luzente no dorso; face ventral com escamosidade uni-

forme branca densa. Estreita faixa submarginal no pronoto, continuada pela faixa no quarto intervalo dos élitros, quase atingindo o ápice, branca, densamente escamosa; no terceiro intervalo, no quarto apical dos élitros, uma mácula concolor, acompanhando paralelamente a faixa do quarto intervalo, ultrapassando esta, chegando perto do ápice.

Fêmea. Rostro como de costume, longo e fino, antenas ruivas, antemedianas. Pronoto com linha mediana lisa, pouco saliente. Lado ventral branco, densamente escamoso, exceto os anéis abdominais 3, 4 e 5 que são glabros, lisos, luzentes no terço mediano dianteiro. Patas com escamas curtas brancas esparsas.

Macho: difere pelos cornos prosternais, cova circular do prosterno, pilosidade menos densa na face ventral.

Compr. de 6 a 7,5 mm., largura de 2,8 a 3,8 mm.

Descrito sobre uma fêmea e um macho, coletados pelo autor em 4.10.1946 em Marantácea do gênero *Saranthe*, na fazenda Terra Firme, Município de Canavieiras, Baía, quando em excursão com o colega e amigo Orlando Teixeira, a quem dedicamos a espécie.

Cótipos na coleção do autor.

Difere da espécie precedente e de *L. westwoodi* pelo colorido e distribuição das máculas e, especialmente, pela face ventral densamente escamosa.

Em nossos estudos sobre *Linonotus*, "Notas Entomológicas da Baía, XII", figurou apenas *L. westwoodi* Boh. (*L. regalis* Casey) no grupo de faixa colorida no pronoto afastada da margem e quarto intervalo dos élitros colorido piloso. Em "Notas Entomológicas, XVI", adicionamos a nova espécie *Linonotus marshalli* Bond. ao mesmo grupo. Com as duas espécies novas acima descritas, este grupo abrange presentemente quatro espécies, que podem ser facilmente diferenciadas pela seguinte chave:

1. Apenas o quarto intervalo colorido nos élitros..... 2
- Além do quarto intervalo piloso colorido, uma mácula preapical no terceiro intervalo 3
2. Faixa pilosa no pronoto, quarto intervalo e metepímero vermelha, corpo subglabro, escaminhas pretas, curtas e esparsas.....
- L. westwoodi* Boh.
- Faixa no pronoto, quarto intervalo e metepímero amarelo-esbranquiçada; mácula avermelhada lateralmente nos segmentos abdominais 2 e 3; corpo com pêlos esparsos longos esbranquiçados.....
- L. justus* n. sp.
3. Epímero metatorácico não pigmentado; mácula amarelo-avermelhada no epímero mesotorácico e, lateralmente, nos anéis abdominais 1, 2 e 3; mácula no terceiro intervalo dos élitros, perto do ápice, curta; corpo glabro, luzente *L. marshalli* Bond.
- Face ventral esbranquiçado-escamosa, inclusive epímeros e abdomen; mácula preapical no terceiro intervalo dos élitros mais longa.....
- L. orlandoi*, n. sp.

Adicionamos ao gênero mais três espécies de máculas heteromorfas. Na subdivisão de "élitros com intervalos 3 e 4 densamente pigmentados" introduzimos a seguinte espécie nova:

Linonotus nicki, n. sp.

Pequeno, preto, pouco lustroso. Máculas amarelo-douradas: uma faixa larga lateralmente no pronoto, abrangendo a margem; o terceiro e quarto intervalo nos élitros, desde a base, não chegando até a quinta parte apical; metepímero; pequena mácula lateralmente nos segmentos do abdomen 2 e 3.

Machos. Rostro mais longo do que a cabeça e pronoto juntos, arqueado, um tanto grosso, comprimido e rugoso lateralmente na metade basal, nitidamente separado da cabeça pela saliência na base. Cornos prosternais curtos. Corpo densamente esculpado, especialmente na face ventral subglabra, semiluzente.

Compr. 4 mm., largura 2,5 mm.

Descrito sobre 2 machos, recebidos sob o n.º 43 do Dr. Paulo Nick, São Paulo, coletados em Jabaquara em 29-10-1941. A este nosso correspondente dedicamos a espécie.

Cótipos na coleção do autor.

Na subdivisão de "élitros com apenas o intervalo sutural densamente colorido", ao lado de *Linonotus suturalis* Boh., introduzimos a seguinte espécie nova:

Linonotus rubicundus, n. sp.

Pequeno, longo, romboide, vermelho-ferrugíneo; face ventral amarelo-clara, densamente escamosa; uma faixa escamosa amarelo-clara na submargem do pronoto, mais larga para a base; intervalo sutural amarelo-claro escamoso.

Fêmea. Rostro longo, arqueado, um tanto forte e comprimido lateralmente na base, separado da cabeça. Pronoto e élitros subglabros, densamente esculpados, sublustrados. Face ventral amarelo-pálida, densamente escamosa. Prosterno plano, junção dos segmentos abdominais 2-4 no bordo, glabra; no ápice do 5.º segmento um pequeno afundamento.

Compr. 5 mm., largura 2 mm.

Descrito sobre 1 fêmea, recebida de A. Maller, Corupá, Santa Catarina.

Tipo na coleção do autor.

Entre as espécies do gênero *Linonotus*, todas de derme preta, a presente espécie destaca-se pelo colorido do corpo e distribuição das escamas.

Seguem duas espécies heteromorfas.

Linonotus caseyi, n. sp.

Tamanho módico; corpo romboidal, preto. Margem do pronoto em faixa larga atingindo o flanco, um pouco mais do que o terço mediano da quinta estria dos élitros, metepímero e margem lateral do segundo anel do abdômen densamente escamosos, amarelo-dourados.

Fêmea. Rostro mais longo do que a cabeça e pronoto juntos, grosso, comprimido e covilhado lateralmente na metade basal. Antenas medianas. Cabeça densamente pontilhada. Pronoto glabro, com covinhas fortes circulares; linha mediana lisa pouco saliente. Élitros esculpturados, semiluzentes, escaminhas minúsculas, esbranquiçadas, esparsas. Face inferior densamente covilhada. Último segmento do abdômen afundado no ápice. Tarsos ruivos.

Compr. 5 mm., largura 3 mm.

Descrito sobre 1 fêmea, recebida de Anton Maller, Corupá, S. Catarina.

Tipo na coleção do autor.

Dedicamos a espécie à memória de Thos. Casey, cuja monumental obra sobre os Baríneos do Brasil presta valiosos serviços.

Linonotus modicus, n. sp.

De tamanho módico, corpo romboidal, preto. Pronoto lateralmente com largas faixas amarelas, unidas na frente, deixando na metade basal apenas um triângulo glabro, preto, densamente esculpturado. Metepímero branco, escamoso. Élitros densamente esculpturados, com escamas finas curtas esparsas, semiluzentes. Rostro fino, cilíndrico, arqueado, mais longo do que a cabeça e pronoto juntos. Antenas antemedianas, ruivas. Face ventral preta, quase glabra, densamente covilhada. Prosterno levemente canaliculado. Segmentos abdominais 2-4, lateralmente, com escamas esbranquiçadas esparsas curtas.

Compr. 5 mm., largura 2,6 mm.

Descrito sobre 1 fêmea, recebida sob o n.º 2574, de A. Willink, Tucumán, Argentina.

A espécie destaca-se das demais do gênero pela ausência de faixas ou máculas coloridas nos élitros. Outros caracteres justificam sua colocação no presente gênero.

Gênero *Megavallius* Casey, 1922

Unhas livres, divergentes; mandíbulas denteadas e cruzadas; rostro mais ou menos fino; protórax gradativamente tubuloso; linha mediana não elevada em carena; coxas dianteiras pouco distanciadas. Grande, vistoso, glabro na maior parte e luzente, pouco esculpado; uma pequena mancha de escamas densas e pálidas no quarto intervalo dos élitros, distante da base por cerca de três quintos do comprimento dos élitros. Rostro moderadamente longo, luzente, fortemente pontilhado, arqueado. Mandíbulas arqueadas, bífidas, pouco cruzadas, proeminentes quando fechadas. Antenas medianas, finas, segmentos destacados; os primeiros dois segmentos do funículo alongados, o segundo mais curto; clava pequena, estreita oval, bem destacada, com o primeiro segmento perfazendo a metade. Coxas dianteiras separadas por cerca da metade do seu diâmetro. Prosterno inermes nos machos. Fêmures pouco engrossados, distintamente covinhados, inermes; tíbias simples; tarsos fortemente dilatados, revestidos de pêlos densos doirados. Protórax um tanto subtubuloso no ápice; lóbulo basal moderadamente longo e abrupto, arredondado no ápice e, geralmente, com pequena impressão de cada lado.

C a s e y conheceu 4 espécies. O Catálogo de H u s t a c h e, 1938, inclui no gênero mais 3 espécies antigas; todas são brasileiras. De nenhuma se conhecia a biologia. Preenchemos esta falha: Os representantes do gênero criam-se nas hastes de Marrantáceas, variando as espécies entomológicas conforme as espécies botânicas nas quais se criam.

Das espécies já conhecidas possuímos várias em nossas coleções. Adicionamos três espécies que consideramos novas.

Megavallius pilosiventris, n. sp.

Preto, luzente. Uma pequena mancha esbranquiçada escamosa na base do terceiro intervalo dos élitros, e uma maior perto do terço apical no quarto intervalo; face ventral com escamas uniformes esbranquiçadas.

M a c h o. Rostro do comprimento de cabeça e pronoto, arqueado, moderadamente grosso, um tanto comprimido e rugoso lateralmente na metade basal, separado da fronte por uma leve inflexão. Antenas ligeiramente postmedianas, ruivas. Cabeça e pronoto finamente pontilhados. Prosterno plano. Segmentos ab-

dominais no terço mediano glabros, 1 e 2 largamente côncavos, concavidade lisa, glabra, luzente.

Compr. 8 mm., largura 4 mm.

Descrito sobre 1 macho, coletado pelo autor em Marantácea, em Dezembro de 1922, em Jequié, Baía.

Vários exemplares da mesma espécie, sob n.º 710, foram remetidos em 24-7-1923 ao Imperial Institute of Entomology, London. A espécie foi identificada como *Centrinus squamipes* Germ.

Na remodelação da sistemática dos Barinae, Casey transferiu *Centrinus squamipes* para o gênero *Valliopsis*, que tem a conformação do rostro toda particular. Possuímos *Valliopsis squamipes* Germ. em nossa coleção. O nosso n.º 710 difere essencialmente pela conformação do rostro não costelado lateralmente, e por possuir uma mácula no quarto intervalo dos élitros, que falta em *V. squamipes*. Além disso, as escamas do prosterno em *squamipes* abrangem as margens do pronoto, quando em nossa espécie a escamosidade é limitada aos flancos.

Da diagnose genérica de Casey para *Valliopsis* a nossa espécie diverge pelas máculas na base dos élitros e pilosidade uniforme na face ventral, características de *Valliopsis*. O rostro, entretanto, não bastante grosso na base, justifica a colocação da espécie no presente gênero.

Megavallius paulistanus, n. sp.

Preto, luzente; uma mácula densamente escamosa amarelada em cada élitro na base do terceiro intervalo e perto do terço apical do quarto intervalo. Prosterno com escamas amarelas, igualmente o meso e metasterno entre as coxas; uma mácula densamente amarela, subdividida, no episterno e epímero mesotorácico; outra mácula dupla, densa, lateralmente nos primeiro e segundo anéis abdominais; pilosidade amarela, mais esparsa, em toda a largura dos anéis abdominais 2-4.

Macho. Rostro do comprimento do pronoto, fortemente arqueado, grosso e comprimido lateralmente na metade preantenal; base um tanto saliente; rugoso lateralmente, porém sem carena tríplice pronunciada. Antenas ruivas, postmedianas. Cabeça e pronoto finamente pontilhados. Fêmures com pêlos grisalhos, tíbias no terço apical e tarsos com pêlos doirados; afundamento no primeiro segmento abdominal raso, largo, com escamas esparsas.

Fêmea. Difere pelo rostro um tanto mais fino na base, antenas medianas e o primeiro segmento abdominal convexo.

Compr. 5,5 mm., largura 3 mm.

Descrito sobre 1 macho, recebido sob o n.º 88 de J. F. Zikán, Rio de Janeiro, e 1 macho e 2 fêmeas, recebidos, sob o n.º 42, do Dr. P. Nick, S. Paulo, coletados em Jabaquara, S. Paulo, em 20.12.1941.

Cótipos na coleção do autor.

Pelo rostro grosso e compresso na base e pelas máculas na base dos élitros, a espécie aproxima-se do gênero *Valliopsis*. Difere pela ausência de três carenas laterais nítidas na base do rostro, e pelas máculas na face ventral.

Megavallius kuscheli, n. sp.

Preto, luzente, glabro. Uma mácula ligeiramente alongada no intervalo 4, no terço apical do élitro, de escamas amarelo-douradas; prosterno escavado na frente; pro e mesosterno, no meio, com pilosidade amarelo-dourada; terço apical das tíbias e os tarsos amarelo-pilosos.

Fêmea. Rostro pouco mais longo do que a cabeça e pronoto juntos, arqueado, separado da fronte por uma inflexão larga e pouco funda, módico em grossura, com covinhas lisas na metade apical; mais grosso, compresso lateralmente e rugoso, na metade basal. Antenas medianas, ruivas. Cabeça finamente pontilhada. Pronoto liso, pontilhação fina, esparsa. Lóbulo basal módico, arredondado e com pequena covinha preapical. Élitros distintamente estriados, intervalos largos, com pontilhação fina distante; no ápice em conjunto arredondados. Face ventral densamente covinhada, glabra; escaminhas minúsculas no fundo das covinhas. Fêmures com escamas esparsas curtas, tíbias pilosas.

Compr. 6,5 mm., largura 3 mm.

Descrito sobre 1 fêmea, recebida sob o n.º 132 do Pe. Guilherme Kuschel, coletada em Porto Alegre, em 15.10.1936.

Dedicamos a espécie ao Rev. Pe. G. Kuschel em reconhecimento de suas valiosas contribuições para o estudo dos Curculionídeos sul-americanos.

Tipo na coleção do autor.

Pela chave de Casey, entre as 4 espécies por ele descritas, a presente espécie aproxima-se de *M. megistrus* Casey, da qual difere pelo tamanho menor, rostro proporcionalmente mais curto, pronoto finamente pontilhado, etc.

Gênero *Valliopsis* Casey, 1922

Segundo Casey o gênero pode ser assim caracterizado:

"Unhas livres, divergentes, mandíbulas pouco cruzadas, denteadas, proeminentes; dorso glabro, com exceção de duas pequenas máculas na base dos élitros, escudo glabro, coxas dianteiras aproximadas, prosterno do macho inerte, fêmures inertes. Rostro bem grosso e compresso lateralmente nos dois terços basais, lados planos e com 3 costelas nítidas;

intervalos densamente pontilhados e esparsamente escamosos; no terço apical gradativamente afinado até cilíndrico, menos esculpado nas fêmeas na parte postantenal. Antenas em três quintos nos machos e em quatro sétimos nas fêmeas, finas; clava pequena, oval; os dois segmentos basais do funículo distintamente alongados, o primeiro mais longo do que os dois imediatos. Mandíbulas tridentadas e retas internamente, salientes quando fechadas, não cruzadas. Prosterno densamente escamoso, não impresso, inerte nos machos, coxas aproximadas. Protórax ligeiramente tubuloso, lóbulo basal largamente arredondado. Escudo largamente trapezoidal, glabro, sinuoso no ápice, ângulos agudos. Élitros com os ombros pouco salientes, arredondados; distintamente estriados; calosidade preapical módica".

O gênero abrange 11 espécies, todas brasileiras, das quais apenas *Valliopsis squamipes* Germ. 1824 (*Centrinus*) é antiga; dez espécies foram descritas por Casey.

Devido a uma pequena diferença nas mandíbulas, afastou Casey na chave genérica este gênero de *Megavallius*; entretanto ambos pertencem ao mesmo grupo morfo-biológico, ligados também ao gênero *Linonotus*. Criam-se em Marantáceas. No gênero *Valliopsis* consideramos como característico principal o rosto fortemente comprimido e tricostelado lateralmente.

O grupo é evidentemente numeroso, porém mal representado nas coleções, pois os adultos aparecem durante curto período no verão, possuem voo rápido e dificilmente são apanhados, o que igualmente acontece com *Linonotus* e *Megavallius*.

Possuímos do gênero três espécies anteriormente descritas; alguns exemplares coletamos pessoalmente em Marantáceas.

Subdividiu Casey o gênero em dois grupos:

- I. Macho com franja de pêlos longos nos fêmures trazeiros; impressão no primeiro anel do abdomen funda, bem delineada; face ventral densamente escamosa Subgênero *Valliopsis*
- II. Macho sem franja nos fêmures trazeiros; a impressão na base do abdomen pouco afundada, rasa; escamosidade na face ventral pouco densa, não encobrindo a derme exceto no abdomen. Subgênero *Valliopsida*

Do primeiro grupo possuímos *Valliopsis squamipes* Germ., *V. campanulata* Casey e *V. binaria* Casey.

Possuímos uma espécie que discorda da subdivisão acima, não possuindo os machos franjas nos fêmures trazeiros; entretanto a face ventral é densamente escamosa.

Valliopsis belmonte, n. sp.

Preto, lustroso e glabro no dorso; uma mácula de escamas esbranquiçadas na base do terceiro intervalo dos élitros; face ventral com escamas densas amareladas.

Mach o. Rostro do comprimento do pronoto, cônico com vista lateral; grosso, comprimido nos lados nos dois terços pre-antenaís; três costelas nítidas na parte plana lateral, das quais duas marginais e uma no meio; terço apical cilíndrico, lustroso; base do rostro um tanto mais alta do que a fronte. Cabeça e pronoto densa e finamente covinhadas. Face ventral densamente escamosa, também na cabeça entre os olhos e nas patas. Afundamento no primeiro segmento abdominal razo e largo, menos escamoso.

Comprimento 6 mm., largura 3,5 mm.

Descrito sobre 2 machos, coletados pelo autor em 20 de Outubro de 1944 em Marantácea, no Município de Belmonte, Baía.

Cótipos na coleção do autor.

Incluimos no gênero uma espécie divergente.

Valliopsis armatus, n. sp.

Preto, lustroso; fêmea com mácula branca escamosa na base do terceiro intervalo dos élitros; macho desprovido de mácula, armado com curtos cornos prosternais, fêmures trazeiros sem franja. Face ventral em ambos os sexos uniformemente branca, escamosa, menos densamente no macho.

Mach o. Rostro um tanto ruivo, grosso e fortemente comprimido na metade basal, com três costelas laterais pronunciadas, sendo a mediana um tanto irregular, intervalos glabros; metade apical cilíndrica. Antenas ligeiramente postmedianas. Cabeça e pronoto lisos, pontilhação fina, espaçada. Lóbulo basal do pronoto estreito, margem apical sinuosa. Cornos no prosterno curtos, cônicos; cova redonda e funda no intervalo. Impressão no primeiro anel abdominal raza.

Fêmea: difere pelo rostro pouco menos engrossado na base, nitidamente 3-costelado nos lados; uma mácula branca na base do terceiro intervalo nos élitros; prosterno inerme, um tanto afundado na parte preapical; face ventral com escamas densas esbranquiçadas.

Compr. 5 mm., largura 2,6 mm.

Descritos sobre um macho e uma fêmea, coletados pelo autor em 20-10-1944 em Marantácea no Município de Belmonte, Baía.

Cótipos na coleção do autor.

Pelo prosterno armado e profundamente escavado no macho a espécie pertence ao gênero *Linonotus*. Os caracteres do

rosto tricostelado lateralmente conduzem a espécie ao presente gênero.

Comentários Sobre Centrinini em Marantáceas.

A nossa prática pessoal neste grupo de Barineos revela que as formas morfológicas dos Centrinini em Marantáceas são numerosas e variáveis, conforme a espécie botânica e o modo de vida. A família das Marantáceas é bem rica em Curculionídeos: Cholinae e especialmente Barinae.

A classificação, puramente morfológica, que Casey deu aos Centrinini, não resolve o problema da sistemática desse agrupamento. Investigações biológicas detalhadas, relacionando as espécies entomológicas aos gêneros e espécies botânicas, serão necessárias, para dar maior clareza à nomenclatura.

Além dos três gêneros acima estudados como hóspedes de Marantáceas, ao mesmo grupo deve ser referido o gênero *Leptoladustes* Casey, e provavelmente alguns outros gêneros.

b) Centrinini em Commelináceas.

Constituindo o gênero *Saldiopsis*, salientou Casey que o mesmo é bem distinto e característico na tribo Centrinini. Os caracteres essenciais são os seguintes: Unhas livres, divergentes; mandíbulas não cruzadas, ou muito pouco, no ápice, falciformes, face interna largamente sinuosa, fêmures inermes. Corpo romboide, densamente esculpado, subopaco, esparsamente piloso. Rostro longo, fortemente arqueado, rugoso em sentido longitudinal. Antenas perto do meio; funículo com o segmento basal do comprimento dos três imediatos. Pronoto densamente esculpado, formando fortes rugas irregulares longitudinais; linha mediana carenada. Macho com cornos prosternais longos. Tamanho módico.

O gênero abrange duas espécies, ambas brasileiras:

Saldiopsis armata Casey, 1922, do Rio de Janeiro, e *Saldiopsis probata* Casey, 1922, da Chapada Mineira.

Possuímos meia dúzia de exemplares, machos e fêmeas, que identificamos como *Saldiopsis probata*, e que coletamos em Commelinácea não identificada no Município de Canavieiras, Baía, em Maio de 1945. Os adultos alimentam-se nas folhas novas. A fêmea inocula os ovos no colmo carnoso da planta, e a larva, à medida que vai crescendo, rói o colmo internamente de cima para baixo.

No Brasil existem cerca de duas dezenas de gêneros, com mais de uma centena de espécies de Commelináceas. É provável que o gênero *Saldiopsis* seja muito mais numeroso em espécies do que presentemente se sabe.

E' possível que o gênero próximo *Pseudosaldius* Casey tenha a mesma biologia, criando-se em Commelináceas.

c) Centrinini em Orquidáceas.

Descreveu O s c a r M o n t e duas pequenas espécies de Centrinini, pragas de Orquidáceas, criando-se as larvas nas flores e destruindo o ovário. Incluiu as espécies no gênero *Diorymerellus*, gênero da América Central, abrangendo dez espécies. Nos fins de 1946, em carta, Monte comunicou-nos que A. H u s t a c h e duvida da colocação genérica das duas espécies descritas.

Possuímos duas espécies de Centrinini, também provenientes de flores de Orquidáceas; pertencem ao mesmo grupo que as espécies de Monte, a julgar pelos desenhos e diagnoses. A colocação genérica, portanto, nos interessa.

O gênero *Diorymerellus* Champ., 1906, foi formulado nos seguintes termos:

“Rostrum strongly arcuate, moderately stout, mandibles short, decussate at the tip; antennal club oval, prothorax more or less tubulate in front; scutellum free, transverse or subquadrate; elytra much wider than the prothorax, triangular or subtriangular, with one or more of the dorsal striae obliterated; pygidium not visible, prosternum unarmed, with smooth deep excavation or sulcus, limited on each side by an oblong ridge and extending backward between the anterior coxae; femora not or feebly sulcate beneath, unarmed; tarsal claws small, more or less connate at the base, free in *D. histeroides*; body rhomboidal, polished, glabrous above. Type *laevipennis*”. (Biol. Cent. Amer., IV, p. V, 1908). Obtivemos a diagnose por gentileza de O s c a r M o n t e.

Nas espécies que possuímos e, segundo os desenhos das espécies de O. Monte, o rosto é moderadamente arqueado, corpo ovóide e não romboidal, élitros pouco mais largos do que a base do pronoto, escudo longo e não transversal, todos os sulcos nos élitros pronunciados, não obliterados, fêmures no ápice profundamente sulcados, etc., etc.

Na complexidade atual dos Baríneos americanos, a diagnose genérica de *Diorymerellus* é demasiado sumária, sem referências aos caracteres das mandíbulas, rosto, antenas, etc.... No entanto, a caracterização elementar acima transcrita é suficiente para dizer que as duas espécies de Monte e as nossas duas não pertencem ao gênero *Diorymerellus*.

C a s e y formulou muitas dezenas de gêneros novos para

Baríneos brasileiros e sul-americanos em geral, mas não se refere a *Diorymerellus*.

Entre os gêneros antigos que Casey aproveitou, e os novos por ele formulados, o gênero *Ovanius* Casey se aproxima mais das nossas espécies. Na chave genérica, porém, *Ovanius* figura "with a moderate and very shallow sulcus" no prosterno e "scutellum oval to transverse". As nossas espécies possuem no prosterno um sulco pronunciado e fundo desde o pescoço, abrindo o queixo da cabeça e as clavas antenais quando em repouso, razão por que o sulco perto do ápice é um tanto largo e arredondado nos bordos, formando uma cavidade redonda. O escudo é oblongo quadrangular. Por estas razões, achamos necessário criar um gênero novo para o grupo dos pequenos Centrinini que se criam em flores de Orquidáceas.

Gênero *Montella*, n. gen.

Unhas cônatas na base ou próximas, paralelas ou pouco divergentes, fêmures inermes, pigídio coberto.

Mandíbulas largas e curtas, arqueadas externamente, concavas na face interna, com forte dente obtuso arredondado na metade basal; invisíveis quando fechadas, sendo encobertas pelo labro superior. Dorso glabro, luzente, inclusive o escudo.

Rostro assaz forte, arqueado, subcilíndrico, achatado e com escultura rugosa lateralmente, módico em comprimento, cerca do comprimento do pronoto, separado da fronte por uma inflexão leve, sem sulco transversal.

Antenas submedianas, glabras; o escapo atinge a cabeça; segmento basal do funículo subigual em comprimento aos três imediatos juntos, porém muito mais grosso; 2-7 curtos, subiguais em comprimento, progressivamente mais largos e transversais, compactos; o sétimo faz parte da clava, é porém menor.

Clava ovoidal, obtusa no ápice; o primeiro segmento ocupa cerca de um terço; pilosidade curta; de comprimento subigual aos segmentos 2-7 ou pouco menor. Cabeça pontilhada, olhos grandes lateralmente; pronoto cônico, ligeiramente tubuloso, covinhado, linha mediana lisa, não saliente; lóbulo basal módico. Escudo alongado-quadrangular, ângulos apicais retos. Élitros pouco proeminentes lateralmente, arredondado-convergentes, em conjunto arredondados no ápice. Dorso sulcado, intervalo sutural estreito, os restantes largos e planos, com pontilhação fina esparsa.

Prosterno profundamente escavado desde o bordo apical;

sulco perto do ápice largamente arredondado nos lados, abrigan-
do a base cefálica e as clavas antenais quando em repouso, mais
razo em seguida perto das coxas dianteiras; o lóbulo basal do
prosterno invade além das coxas o mesosterno, formando uma
superfície unida.

Face ventral densamente covinhada; coxas dianteiras distan-
ciadas por mais do que o seu diâmetro; fêmures sulcados no ápi-
ce, para recepção das tíbias; tíbias cerca $3/4$ do comprimento
dos fêmures; os dois primeiros segmentos dos tarsos subiguais,
pouco alargados; o terceiro bilobado, quase duas vezes mais lar-
go do que os precedentes.

Corpo pequeno, ovoidal, glabro, lustroso. Dimorfismo se-
xual pouco manifesto. Cria-se em flores de Orquidáceas.

Genotipo: *Montella rufipes* n. sp.

Dedicamos o gênero ao amigo e colega Oscar Monte.

Entre os gêneros atuais, o novo gênero aproxima-se de *Ova-
nius* Casey, do qual difere principalmente pela conformação do
prosterno profundamente escavado.

Montella rufipes, n. sp.

Pequeno, glabro, lustroso, preto; élitros escuro-arruivados;
antenas e patas ruivas.

M a c h o. Rostro glabro, moderadamente arqueado, um tan-
to robusto, com escultura rugosa e densa nos lados, mais achata-
do na metade basal, carenas longitudinais mais nítidas na me-
tade apical lustrosa. Antenas ligeiramente postmedianas, escro-
bos em declive rápido; escapo um tanto engrossado na metade
distal, atingindo a cabeça; funículo com o segmento basal gros-
so e cerca do comprimento dos três imediatos; segmentos 2-7
subiguais em comprimento, progressivamente mais largos; clava
largamente oval, obtusa no ápice, separação dos segmentos pou-
co pronunciada; comprimento subigual ao dos 5 segmentos pre-
cedentes. Cabeça finamente pontilhada. Pronoto cônico, ligeira-
mente tubulado no ápice, com covinhas circulares, linha mediana
lisa; lóbulo basal pequeno, bordo apical arredondado, inflexo.
Escudo alongado-quadrangular, ângulos posteriores retos, im-
presso e liso no dorso.

Élitros pouco mais largos do que a base do pronoto, om-
bros salientes arredondados; lados arqueados, ápice em conjun-
to arredondado; dorso distintamente sulcado, sulcos largos e fun-
dos, com covinhas alongadas; intervalo sutural estreito, os res-

tantes largos, planos, com pontilhação irregular esparsa. Toda a parte dorsal completamente glabra, sem vestígio de escamas ou pilosidade.

Face ventral, inclusive os fêmures, com covinhas grossas densamente agrupadas; abdomen pontilhado; escaminhas minúsculas esbranquiçadas nas covinhas no lóbulo basal do prosterno e entre as coxas do mesosterno.

Prosterno profunda e largamente escavado desde o colo; um canal alargado arredondado perto do ápice, mais raso perto das coxas; intervalo entre as coxas e o prolongamento postcoxal um tanto afundado, servindo de sulco para o rostro. Primeiro segmento do abdomen levemente impresso.

Fêmea : difere pelo rostro pouco mais liso na metade apical, antenas ligeiramente ante-medianas e o primeiro segmento do abdomen convexo.

Compr. de 2,6 a 2,8 mm., largura 1,3 mm.

Descrito sobre 4 machos e 7 fêmeas, recebidos, sob o n.º 3024, de Gert Hatschbach, Curitiba, Paraná. Colhidos na Orquidácea *Sternorhynchus australis* em Florestal, Rio de Janeiro, em Outubro de 1944.

Cótipos na coleção do autor, na Escola Nacional de Agronomia no Rio de Janeiro, e no Chicago Natural History Museum.

Montella oncidii, n. sp.

Pequeno, inteiramente preto, glabro, inclusive fêmures e tíbias, lustroso; antenas e tarsos pouco arruivados. Unhas pequenas, subcônatas na base, paralelas. Rostro forte, cilíndrico, do comprimento do pronoto, arqueado, fortemente rugoso nos lados que são um pouco achatados; liso, finamente pontilhado lustroso na frente arredondada, separado da fronte por uma inflexão leve, não sulcada. Antenas com o segmento basal do funículo grosso e longo, 2-7 subiguais em comprimento, progressivamente mais largos, transversais, compactos; clava oblongo-oval, subigual em comprimento ao conjunto dos seis segmentos precedentes.

Macho. Rostro um tanto achatado lateralmente até perto do ápice e fortemente rugoso em sentido longitudinal. Antenas ligeiramente postmedianas. Cabeça lisa, pontilhação finíssima. Pronoto com lados convexos, convergentes, moderadamente tubuloso; dorso com covinhas minúsculas, distanciadas, não afetando a linha mediana lisa. Lóbulo basal pequeno, um tanto truncado no ápice. Escudo alongado-quadrangular, ângulos posterior-

res retos, dorso largamente côncavo em comprimento, liso. Élitros na base um pouco mais largos do que o pronoto; ombro um tanto caloso; lados convexos e convergentes; ápice em conjunto arredondado; dorso finamente sulcado, sulcos estreitos, uniformes; intervalo sutural estreito, os restantes largos e planos, com pontilhação finíssima, irregular, distanciada.

Face ventral densamente covinhada, covinhas menores no abdomen; segmentos abdominais 3-4 apenas com uma carreira de pontilhação fina e densa; primeiro segmento levemente inflexo no lado basal.

Prosterno larga e profundamente escavado; a cavidade lisa, brilhante no fundo, termina no ápice sem atravessar a margem, e se estende até entre as coxas dianteiras. Coxas dianteiras separadas por mais do que o seu diâmetro.

Episterno metatorácico grande, marginado por uma carena proeminente e arqueada no limite com o epímero, deixando este afundado entre a carena e o bordo do élitro.

Fêmea: difere do macho pelas antenas medianas e o primeiro anel abdominal convexo.

Compr. de 2,2 a 2,4 mm., largura 1,3 mm.

Descrito sobre 1 macho e uma fêmea, recebidos, sob o n.º 2242, de Gert Hatschbach, coletados em Outubro de 1943, em flores da Orquidácea *Oncidium concolor* em Curitiba, Paraná.

Tipo e paratipo na coleção do autor.

Não conhecemos as espécies *Diorymerellus* Monte e *D. minensis* Monte. Não temos, porém, nenhuma dúvida que ambas as espécies devem pertencer ao novo gênero *Montella*. Recebemos da Argentina duas espécies, etiquetadas como *Ovanus piceipennis* Boh. e *Ovanus rubricus* Hust. Ambas possuem no prosterno uma cavidade larga e funda, que abriga as antenas. Não podem, portanto, pertencer ao gênero *Ovanus* cujo prosterno possui "moderate and very shallow sulcus". Não é impossível que vivam em flores de Orquidáceas e pertençam também ao novo gênero.

O novo gênero é bem diferenciado morfológicamente. Investigando as flores das nossas numerosas espécies de Orquidáceas, poder-se-ão descobrir muitas espécies novas.

O gênero *Ovanus* Casey abrange espécies heteromorfas, como o próprio Casey reconhece. O único caminho para elucidar a sistemática, é o estudo da sua biologia.

d) Madarini em Palmáceas.

A biologia da tribo Madarini é pouco conhecida. Há probabilidade de que as espécies se criem exclusivamente em Monocotiledôneas. Conhecemos representantes em Ciperáceas, Marantáceas e Palmáceas. É provável que outras famílias Monocotile-

dôneas sejam exploradas por esses insetos. A biologia dos verdadeiros *Madarus* ainda é um problema para resolver.

Não obstante a existência de numerosos gêneros, na maioria criados por Casey, a tribo necessita ainda de novos agrupamentos genéricos, especialmente nas espécies pequenas.

Gênero *Palmoderes*, n. gen.

Unhas livres, fêmures e prosterno do macho inermes, prosterno canaliculado, pigídio descoberto, dorso esculturado, face ventral densamente escamosa, corpo largo-ovoidal.

Rostro do comprimento do pronoto, forte, arqueado, comprimido lateralmente, distintamente carenado, separado da cabeça por uma inflexão leve. Mandíbulas cônicas, proeminentes, não cruzadas, bordo externo subreto. Escrobos em declive, unidos inferiormente na base do rostro formando um sulco largo, comum, abrigando as clavas dos escapos. Antenas finas, postmedianas; escapo longo, fino, clavado no ápice; funículo longo, segmento basal do comprimento dos três imediatos; segmentos 2 a 5 de comprimento subigual à largura; segmentos 6-7 do mesmo comprimento, porém mais largos, transversais; clava pequena, oval, do comprimento de vários segmentos precedentes.

Pronoto transversal, não tubuloso, covinhado, linha mediana pouco marcada; lóbulo basal pronunciado, estreito para o ápice. Élitros sulcados, pouco mais largos do que a base do pronoto, isoladamente arredondados no ápice, deixando o pigídio descoberto. Prosterno levemente afundado em sentido longitudinal; coxas dianteiras separadas por cerca do seu diâmetro. Tarso basal cilíndrico, o segundo triangular, o terceiro largamente bilobado; unhas pequenas, livres.

Face dorsal parcialmente e face ventral na totalidade densamente escamosa. Dimorfismo sexual pouco acentuado.

Genótipo *Palmoderes suturalis*, n. sp.

Diverge do gênero próximo *Loboderes* Sch. pela conformação das antenas, rostro carenado, ápices dos escrobos unidos, sulcos pronunciados nos élitros, etc. Do gênero *Loboderinus* Solari difere pelo corpo largo-ovoidal, (em *Loboderinus* cilíndrico), pela conformação do rostro, antenas, etc.

O novo gênero é característico pelo fato de abrigar nos escrobos apenas os escapos das antenas, sendo expostos o funículo e clava.

Palmoderes suturalis, n. sp.

Pequeno, largamente oval, preto, lustroso; a face ventral, o pronoto largamente nas margens, os dois intervalos suturais dos élitros com escamas decumbentes densas amarelo-esbranquiçadas; também há escamas grandes e do mesmo colorido em todos os intervalos dos élitros, sendo, porém, caducas, não aparecem em todos os indivíduos. Às vezes apenas o primeiro intervalo sutural é densamente escamoso.

Rostro do comprimento do pronoto, arqueado, fortemente achatado nos lados; frente com quilha forte, desde a base entre os olhos até perto do ápice, acompanhada lateralmente, após um profundo sulco, de carena fina, terminando no ápice; face lateral nhados; um ou dois intervalos suturais densamente escamosos, escrobos no ápice unidos, formando uma cavidade larga inferiormente na base do rostro. Antenas no terço apical, pretas; funículo fino, luzente; clava módica, do comprimento dos 4 segmentos precedentes, aveludada, castanha.

Cabeça pontilhada; queixo com covinha funda interocular; distância interocular na frente menor do que a largura do rostro. Pronoto covinhado, escamoso nas margens, escamas grandes, largas e longas, caducas no dorso, deixando uma faixa mediana lisa, brilhante. Lóbulo basal triangular, margem apical inflexa. Escudo grande, liso, cordiforme.

Élitros com sulcos pronunciados estreitos, intervalos covinhados; um ou dois intervalos suturais densamente escamosos, os restantes com escamas geralmente caducas. Pigídio pequeno, triangular-arredondado.

Patas com escamas menores e esparsas, tarsos com pêlos amarelados, unhas vermelhas.

Compr. 3 mm., largura de 1,8 a 2 mm.

Descrito sobre 15 espécimens, recebidos de Anton Maller, Corupá, S. Catarina, coletados em Outubro de 1943, em "palmito espinhoso de pouca altura".

Cótipos na coleção do autor e no Chicago Natural History Museum.

Em diversos de nossos trabalhos anteriores divulgamos a biologia de vários gêneros de Barinae que se criam em Palmeiras. A totalidade dessas divulgações refere-se às divisões Coccoideae, Elacidae e Attaleae, sem abranger os Bactrideae. O "palmito espinhoso de pouca altura", indica provavelmente uma de nossas numerosas Palmeiras Bactríneas. É um campo vasto e completamente inexplorado, que promete muitas novidades, especialmente na entomologia das flores.

e) Madarini em Marantáceas.

Gênero *Loboderes* Sch.

Segundo Casey, o gênero pode ser assim caracterizado: Pigídio descoberto, prosterno inirme nos machos, unhas dos tar-

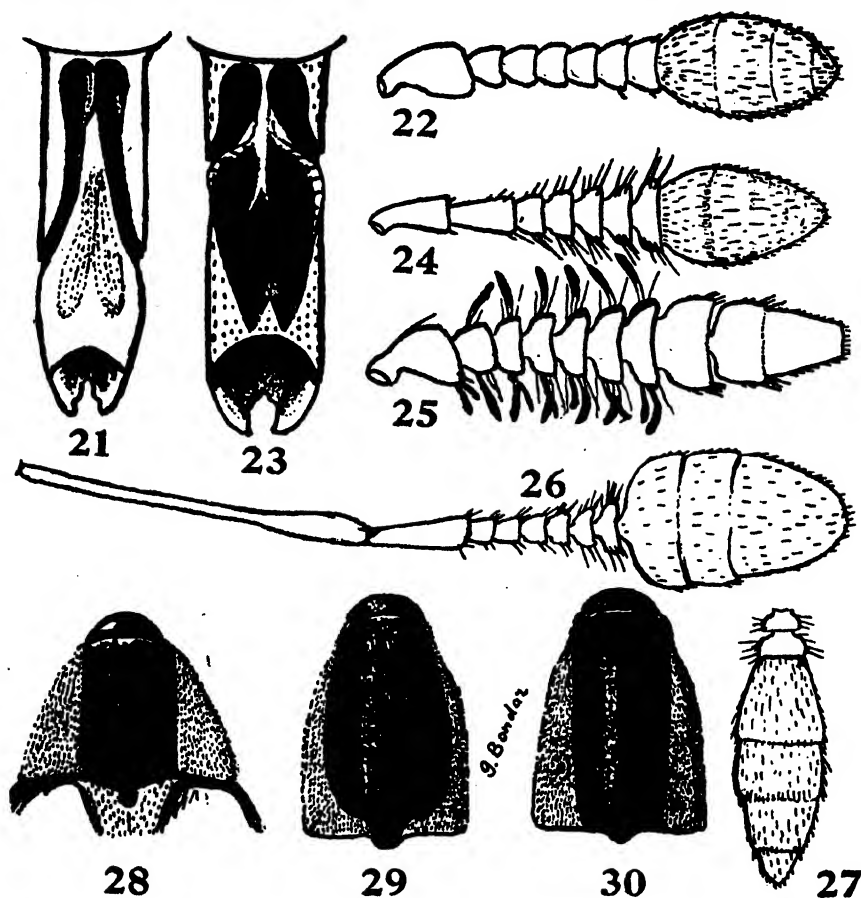


Fig. 21. *Palmoderes suturalis* n. g. n. sp., face inferior do rostro, com os escrobos antenais. — Fig. 22. Idem, funículo e clava da antena. — Fig. 23. *Loboderes saranthae* n. sp., face inferior do rostro com os escrobos e as cavidades que abrigam o funículo e a clava. — Fig. 24. Idem, funículo e clava da antena. — Fig. 25. *Loboderes flavicornis* Gyll., funículo e clava da antena do macho. — Fig. 26. *Loboderinus flavirostris* n. sp., escapo, funículo e clava da antena do macho. — Fig. 27. Idem, segmentos terminais e clava da antena da fêmea. — Fig. 28. *Palmoderes suturalis* n. g. n. sp., esquema da distribuição das áreas esbranquiçadas no pronoto. — Fig. 29. *Loboderinus basalis* n. sp., idem. — Fig. 30. *Loboderinus flavirostris* n. sp., idem. (Bondar del.)

sos longas e divergentes, corpo alongado-oval, prosterno não canaliculado, coxas dianteiras bem distanciadas, fêmures inermes, élitros lisos, pouco esculpturados, rostro grosso, antenas distintamente postmedianas; funículo antenal nas fêmeas moderado, nos machos curto, grosso, piloso, clava módica suboval. Corpo alon-

gado-suboval, densamente escamoso na face ventral, glabro, liso e brilhante no dorso; lóbulo torácico abrupto, proeminente, arredondado, escudo lunulado transversal, aderente ao lóbulo; élitros com estrias obsoletas finas, pigídio módico, vertical, convexo, coxas dianteiras distanciadas por uma vez e meio do seu diâmetro; fêmures finos, inermes, tarsos estreitos.

Hustache no seu Catálogo inclui neste gênero 13 espécies, todas da América tropical, 5 das quais da fauna brasileira. Adicionamos mais uma que julgamos nova, e redescrevemos uma espécie antiga.

Loboderes sarathae, n. sp.

Preto, liso e lustroso no dorso; patas avermelhadas; face ventral e patas com escamas uniformes densas curtas esbranquiçadas.

Rostro grosso, subreto, em forma de cunha no ápice, pouco mais curto do que o pronoto, um tanto côncavo lateralmente na parte preapical, frente arredondada, moderadamente estriada em sentido longitudinal. Antenas no terço apical, escrobos com o bordo superior um tanto saliente, ápices aproximados inferiormente, porém separados por uma parede estreita; o funículo (exceto os dois segmentos basais), quando em repouso, abriga-se num alojamento raso, afundado no rostro engrossado inferiormente, como mostra a figura; escapo normal, cilíndrico, clavado no terço apical; funículo com os dois segmentos basais longos subiguais, cônicos; segmentos 3-7 subiguais em comprimento, progressivamente mais largos, transversais, vasiformes, pilosidade forte ereta; clava ovóide, do comprimento dos cinco segmentos precedentes, finamente aveludada.

Pronoto fina e densamente pontilhado, lustroso, cônico, não tubuloso no ápice; lóbulo basal pronunciado e arredondado no ápice. Escudo estreito, lunular, transversal. Élitros glabros, lustrosos, lisos; estriás marcadas por uma pontilhação fina desunida, intervalos com pontilhação finíssima. Pigídio arredondado triangular, covinhado, escamoso.

Face ventral, inclusive as patas, com escamas curtas densas esbranquiçadas; prosterno com esboço de canal razo, largo, apenas marcado por duas carenas laterais obtusas e escamosas. Patas avermelhadas, unhas grandes, divergentes.

Compr. 6 mm., largura 2,2 mm.

Descrito sobre dois espécimens, provavelmente macho e fê-

mea, sem dimorfismo sexual pronunciado. Coletados pelo autor em Marantácea do gênero *Saranthae* no Município de Belmonte, Baía, em 20-10-1944.

Tipo e paratipo na coleção do autor.

Difere das demais espécies do gênero pelos segmentos basais do funículo subiguais, longos, escamosidade subigual na face ventral e patas, e colorido das patas.

Loboderes flavicornis Gyll. 1836.

Preto, lustroso; antenas amarelo-avermelhadas, patas ruivas; face ventral e patas com escamas esbranquiçadas.

M a c h o. Rostro grosso, subreto, ápice em forma de cunha, mais curto do que o pronoto, densamente esculpado, achatado e covinhado lateralmente, arredondado e finamente estriado na frente. Escrobos rostrais no ápice do rostro; na parte terminal do lado ventral do rostro, na metade dianteira, existem alojamentos razos para o funículo e a clava. Escapo vermelho, fortemente achatado e largo, a margem externa saliente do escrobo lamelada, serrilhada no bordo; primeiro segmento do funículo grosso, do comprimento dos dois imediatos; o segundo de largura subigual ao comprimento, segmentos 3-7 do mesmo comprimento, porém progressivamente mais largos e transversais, providos de escamas longas, pretas na metade distal, grossas, clavadas, de comprimento pouco menor que a largura dos segmentos, curvadas um tanto para a base; além dessas escamas clavadas, há pêlos longos e finos, ruivos. Clava nitidamente seccionada; os dois segmentos basais com lados subparalelos, o terceiro cônico, nitidamente truncado no ápice; um lado da clava achatado. Cabeça fina e densamente pontilhada. Pronoto cônico, mais longo do que largo, não tubuloso no ápice, finamente pontilhado; lóbulo basal arredondado, com pequena impressão lateralmente. Élitros finamente pontilhados, estrias apenas marcadas por carreiras de pontilhação mais grossa, alinhada, desunida; lados paralelos, ápices obtusa e isoladamente arredondados. Pígidio grande, arredondado triangular, com escamas esbranquiçadas.

Face ventral com escamas uniformes amarelas, um tanto grandes, clavadas. Segmento basal do abdomen cerca de duas vezes mais longo do que o segundo no alinhamento longitudinal.

Compr. de 4 a 4,4 mm., largura de 1,2 a 1,4 mm.

Redescrito sobre três machos, dos quais um recebido do Sr. Bruno Pohl, São Paulo; um recebido, sob o n.º 2603, do Dr. A.

Willink, Tucumán, Argentina; e um coletado pelo autor em Marantácea, na Baía.

O característico principal da espécie, o escapo antenal lamelado, Casey não menciona nessa espécie. Lacordaire anota porém: "le mâle a le scape déprimé, très large, tranchant en dehors..." Casey diz que esta espécie tem o terceiro segmento da clava cônico. No entanto, a clava, vista do lado mais largo, é francamente truncada no ápice.

Gênero *Loboderinus* Solari

Segundo a chave dicotômica de Casey, este gênero figura ao lado de *Loboderes*, com os caracteres seguintes: "Funiculo antenal moderado, fino, clava extraordinariamente modificada nos machos; corpo pequeno, estreito, cilíndrico oval, lóbulo basal torácico largo módico, escudo triangular, élitros sulcados, pigídio obliquo; rostro forte, antenas nos machos distintamente postmedianas, submedianas nas fêmeas; face ventral densamente escamosa; coxas dianteiras separadas por pouco mais do que o diâmetro das mesmas; fêmures não engrossados, inermes".

Transcrevemos a diagnose genérica:

"Corpo alongado ou cilíndrico, suboval, rostro módico, um tanto fino, fortemente esculpado, especialmente nos machos, separado da frente por uma impressão; mandíbulas bifidas, agudas, proeminentes; antenas diferentes nos sexos. O corpo parcialmente escamoso no dorso, protórax não tubuloso e com o lóbulo basal pequeno; escudo livre, variável, bem desenvolvido; élitros com sulcos nítidos, covinhados; pigídio pequeno, achatado, densamente pontilhado e obliquo nos machos, subvertical nas fêmeas. Antenas medianas nas fêmeas, no terceiro quinto nos machos, com escapo longo; primeiro segmento do funículo do comprimento dos três imediatos; clava larga e abrupta, quase oval nas fêmeas, ou larga, achatada e obtusa na ponta e com o segmento basal grande nos machos. Prosterno plano, separando as coxas por mais do que o diâmetro das mesmas, inerte nos machos; fêmures inermes."

O Catálogo de Hustache regista quatro espécies, todas brasileiras e sem dados biológicos. São: *Loboderinus basalis* Solari, 1906, *L. bipartitus* Casey, *L. clavatus* Solari e *L. collaris* Boh. Possuímos três espécies, das quais uma identificamos como *L. basalis* Solari; uma descrevemos a seguir como nova; e uma, representada por um exemplar único, deixaremos para estudos futuros. Possui esta última o pronoto glabro nas margens e, no dorso, apenas o escudo é amarelado-piloso.

Loboderinus rufirostris, n. sp.

Longo, ovóide, corpo preto, dorso glabro lustroso; face ventral e largas margens no pronoto com escamas densas esbranquiçadas; rostro, antenas e patas pálido-amarelos, clava enegrecida; dimorfismo sexual pronunciado no rostro e antenas.

M a c h o. Rostro robusto, módico em comprimento, mais curto do que o pronoto, comprimido e fortemente carenado lateralmente, pouco arqueado nos dois terços basais, mais incurvo no terço apical. Antenas no terço apical, amarelo-pálidas; escapo longo, fino, linear, pouco clavado no quarto distal; funículo curto, fino; primeiro segmento da grossura da ponta do escapo, cônico, longo, do comprimento dos três segmentos imediatos; segmentos 2-7 subiguais em comprimento, progressivamente mais largos e pilosos. Clava largamente ovoidal, com segmentação nítida, mais larga no segundo segmento, ápice obtuso; colorido enegrecido, pubescente; vista de frente, é mais larga do que o rostro; vista de perfil, é longo-obcônica, mais plana de um lado; em repouso as faces planas das duas clavas formam um só corpo, abrigado na cavidade inferior do rostro.

Cabeça densa e finamente pontilhada. Pronoto com covinhas uniformes circulares densamente agrupadas, de um terço mais longo do que largo, lados subparalelos nos dois terços basais, convergentes no terço apical, formando um colo longo pouco destacado; flancos do protórax e margens do pronoto, em quarta parte da largura, branco-escamosos nos dois terços basais; a pilosidade estende-se um tanto para a base do pronoto, não atingindo o lóbulo. Lóbulo basal curto, truncado, bordo posterior levantado. Escudo subtriangular, base côncava, dorso com escamas esbranquiçadas finas. Élitros quase da largura do pronoto, glabros, luzentes, lados subparalelos, pouco arqueados; dorso distintamente estriado; intervalos planos, finamente pontilhados, os do meio pouco mais largos do que os marginais.

Face ventral com escamas esbranquiçadas, densas, uniformes, longas, grossas, decumbentes. Patas amarelo-pálidas, as dianteiras quase glabras, as posteriores finamente pilosas. Fêmures grossos, inermes. Pigídio estreito, semicircular, plano, pouco convexo, densamente covinhado.

F ê m e a : difere pelo rostro mais escuro, mais longo, do comprimento do pronoto, cilíndrico, liso, não carenado lateralmente, pouco cônico na base; antenas medianas, escapo mais curto, clava comprida porém obcônica, não achatada, segmentos ní-

tidos, dos quais o basal o mais longo, formando mais do que o terço da clava.

Comprimento 4,3 mm., largura 1,4 mm.

Descrito sobre 102 espécimens, machos e fêmeas, coletados pelo autor em vários pontos do sul baiano em flores de *Compostas* melíferas.

Cótipos na coleção do autor, no Chicago Natural History Museum e na Escola Nacional de Agronomia, Rio de Janeiro. Sob o n.º 4005 remetemos a espécie ao Imperial Institute of Entomology, London.

Pelo colorido do rosto e patas a espécie assemelha-se a *Loboderinus collaris* Boh. Difere essencialmente pelo tamanho maior, o rosto nas fêmeas nunca é preto, apenas um tanto mais escuro do que nos machos; no numeroso material que possuímos, não se observa mácula pilosa na base do pronoto, antes do lóbulo basal. Outros característicos das duas espécies coincidem.

Loboderinus basalis Solari

Fêmea. Corpo preto, inclusive rosto e patas; antenas e tarsos ruivos. Dorso glabro, lustroso; face inferior, patas, flancos do protórax e margens do pronoto com pilosidade branco-amarelada densa; faixa pilosa marginal do pronoto sensivelmente alargada na base, atingindo os lados do lóbulo basal.

Rosto mais curto do que o pronoto, arqueado, cilíndrico, pontilhado, lustroso, pouco mais grosso na base covinhada, separado da fronte por uma inflexão leve, com sulco transversal estreito e razo no intervalo entre os olhos.

Antenas medianas; funículo curto, subglabro; clava grande, mais comprida do que o funículo, da grossura do rosto, obcônica, achatada de um lado, segmentos destacados.

Pronoto mais longo do que largo, fina e densamente covinhado; lados retos subparalelos convergentes nos dois terços basais, mais convergentes no terço apical, sem formar colo nítido; margens densamente escamosas desde a base até ao ápice; lóbulo basal curto; truncado no ápice. Escudo glabro, agudo triangular, transversal, impresso no dorso.

Élitros da largura do pronoto, paralelos, dorso lustroso, distintamente sulcado, sulcos covinhados, intervalos densa e finalmente pontilhados. Pigídio preto, arredondado-cônico, glabro, densamente covinhado, escaminhas curtas nas covinhas. Prosterno plano.

Compr. 4,3 mm., largura 1,5 mm.

Redescrito sobre uma fêmea, coletada em Santa Catarina, por A. Maller.

Considerações. — Os gêneros *Loboderes*, *Loboderinus* e *Stripenia* Casey, como também o novo gênero *Palmoderes*, possuem como característico comum o corpo densamente escamoso na face ventral, a conformação do rostro e das antenas um tanto extravagante. Pela face inferior densamente escamosa aproxima-se o grupo do gênero *Valliopsis*, que evolui em Marantáceas. O novo gênero *Palmoderes*, entretanto, é próprio de Palmeiras, provavelmente Bactríneas.

Nada se sabe a respeito da biologia de *Loboderinus*. Coletamos numerosos exemplares de *Loboderinus rufirostris* em flores melíferas de Dicotiledôneas, nos sítios onde abundam Zingiberáceas, Marantáceas e Palmeiras Bactríneas.

Chamamos a atenção dos pesquisadores para verificar a família botânica em que o gênero evolui.

IV. Subfamília Cryptorrhynchinae.

Criam-se todos em plantas Dicotiledôneas.

Gênero *Chalcodermus* Sch.

Segundo Lacordaire o gênero tem os seguintes caracteres principais: Tamanho módico ou pequeno; élitros envolvendo o corpo; escrobos ao longo do rostro, marginando a face inferior, vistos lateralmente; olhos na fronte confluentes ou próximos; rostro cilíndrico, comprimido lateralmente na base; lóbulos oculares pequenos ou nulos; metasterno curto, epímeros largos; corbelhas das tíbias trazeiras fechadas; cores às vezes metálicas; unhas fendidas; corpo geralmente glabro. É gênero essencialmente americano.

Os representantes do gênero dividem-se em dois grupos: a) espécies de pronoto grossamente covinhado; b) espécies de pronoto com rugas onduladas irregulares, divergindo para o ápice.

O Catálogo de Hustache, 1936, regista 36 espécies, das quais 9 brasileiras. Das espécies baianas entram no gênero *Chalcodermus bondari* Marshall, "podador do algodão" e *Chalcodermus marshalli* Bondar, "podador de cacau". Posteriormente adicionamos: *Chalcodermus yvensi* Bond., criando-se em vagens decepadas de feijão; *Chalcodermus camposi* Bond. e *Chalcodermus canavaliae* Bond., este último criando-se em *Canavalia obtusifolia*.

Revelamos a biologia do gênero em nossos escritos anteriores, especialmente a do "podador do algodão", a do "podador de cacau", e das vagens do feijão *Chalcodermus angulicollis* e *Ch. yvensi* Bond.

Provavelmente o gênero possui numerosas espécies no Brasil e, em geral, na América do Sul. Adicionamos ao grupo algumas espécies que julgamos novas.

Chalcodermus lunatus, n. sp.

Cúpreo-escuro-brilhante, inclusive rostro e patas; intervalos 3 e 7 dos élitros com escamas brancas finas, produzindo lateralmente nos élitros uma figura lunar.

Rostro subreto, do comprimento de cabeça e pronoto juntos, ou pouco mais longo, esculpado, pouco arqueado. Antenas medianas ou ligeiramente postmedianas, escapo atingindo o olho; primeiro segmento do funículo cônico, do comprimento dos três imediatos, os seguintes curtos e pequenos, cada vez mais largos, globosos; clava oval, módica, do comprimento dos três segmentos precedentes. Olhos confluentes na fronte no terço superior. Cabeça densamente covinhada, opaca. Pronoto distintamente rugoso, rugas irregulares, divergentes para o ápice e os flancos.

Escudo alongado-elíptico, convexo, liso, metálico. Élitros muito mais largos do que o protórax, ombros salientes, obtusos; atrás do ombro, na margem dos élitros, um dente pronunciado, acompanhado posteriormente por uma depressão ascendente nos élitros, que é forrada de pequenas escaminhas brancas, cujo alinhamento continua no terceiro intervalo; outra ramificação de escamas brancas passa pelo sétimo intervalo, unindo-se com o terceiro no ápice; engloba a auréola branca o terço mediano dos intervalos 4, 5 e 6 que, nesta parte, são mais escuros do que o resto dos élitros; estrias com covinhas razas; o conjunto é lustroso, formando um espelho enquadrado, em forma de meia lua. Élitros de cor avermelhada, margem sutural e externa, como também o espelho mais escuros. Estrias marcadas por covas fundas, grandes, desunidas. Margens retas convergentes, dando aos élitros aspecto triangular; vistos pelo dorso, os ápices são truncados.

Os dois pares de fêmures dianteiros com forte dente no terço apical; tíbias dianteiras largamente entumescidas internamente no meio e com pêlos grandes na gibosidade; tíbias médias na face interna mediana com tubérculo; fêmures posteriores inermes e, em outros indivíduos, unidentados; tíbias posteriores fortemente arqueadas, angulosas externamente na base e, nos indivíduos de fêmures trazeiros armados, com dente obtuso internamente no terço distal.

Compr. de 5 a 5,5 mm., largura de 2,8 a 3 mm.

Descrito sobre 5 exemplares: três recebidos, sob o n.º 1939, de Filipe Justus Junior, Ponta Grossa, Paraná; e dois da Argentina, sob nos. 2535 e 2573, do Dr. A. Willink, de Tucumán.

Cótipos na coleção do autor e no Chicago Natural History Museum.

Chalcodermus serjaniae, n. sp.

De cor cúprea uniforme, inclusive rostro e patas, face ventral de um cúpreo mais escuro; glabro; segundo intervalo dos élitros, afundamento ascendente posthumeral e, em continuação, os intervalos 3 e 7 com pêlos brancos finos, englobando na vista lateral o espelho semilunar brilhante.

Rostro do comprimento de cabeça e pronoto juntos, pouco arqueado, distintamente sulcado lateralmente, mais liso nas fêmeas, densamente covinhado, separado da fronte por um pequeno sulco curto e brusco.

Olhos aproximados, porém não contíguos, separados por cerca da quarta parte de largura do rostro.

Cabeça densamente covinhada, lustrosa. Pronoto fortemente e irregularmente rugoso. Escudo pequeno, alongado, hemisférico, liso, brilhante.

Élitros com os ombros largamente salientes e com dente obtuso externo, bruscamente estreitados em seguida; escaminhas brancas acompanham o estreitamento no sentido ascendente e continuam no sétimo e terceiro intervalos, ligando-se no ápice dos élitros, abrangendo o terço mediano dos intervalos 4, 5 e 6, formando uma figura semilunar, brilhante, de pontilhação intervalar menor do que no resto dos élitros. Intervalo sutural glabro; o segundo com escamas esparsas brancas desde perto da base. Estrias fortemente covinhadas, desunidas; ápice dos élitros truncado, deixando às vezes o pigídio descoberto; configuração lateral arredondada, obesa.

Os três pares de fêmures e tíbias unidentados no meio. Tíbias trazeiras arqueadas, externamente angulosas na base, dois esporões apicais no lado interno.

Comprimento 4 mm., largura 2,5 mm.

Descrito sobre 22 espécimens, machos e fêmeas, coletados pelo autor em 20-6-1946, em Soure, Baía, em "cipó cururú", *Serjania* sp., família das Sapindáceas.

Cótipo na coleção do autor, na Escola Nacional de Agronomia, Rio e no Chicago Natural History Museum.

Biologia. Os adultos decepam as pontas novas de cipó, de 10 a 20 cm. de comprimento, desfolhando primeiramente a

parte decepada. O corte é feito com furinhos sucessivos em roda da haste. A fêmea introduz ovo em furinho de 0,5 a 1 mm distante do corte, na parte isolada. A ponta cortada cai ao chão; o desfolhamento facilita a queda na terra, não embaraçando-se a ponta nas ramas do cipó. A larva cresce em poucos dias na parte decepada, e enterra-se no solo onde passa a metamorfose, e o adulto, na terra, espera época própria para nova brotação da planta.

A primeira vista, devido ao espelho semilunar lateralmente nos élitros, *Chalcodermus serjaniae* se parece com *Ch. lunatus*. A diferença entre as duas espécies é a seguinte: *Ch. serjaniae* é menor em tamanho, de configuração obesa e não triangular, élitros com dente lateral obtuso no ombro e não posteriormente a este; o segundo intervalo piloso; élitros uniformemente cúpreos, quando em *Ch. lunatus* são avermelhados. A diferença principal reside nos olhos que são distanciados em *Ch. serjaniae* e confluentes em *Ch. lunatus*.

E' de presumir que *Chalcodermus lunatus* também se crie em *Serjania*, porém em outra espécie botânica.

Chalcodermus sparsepilosus, n. sp.

Pequeno, metálico-cúpreo, élitros um tanto mais claros, avermelhados, rostro escuro, quase preto, luzente; com escamas brancas, esparsas, formando máculas mal definidas nos élitros.

Rostro do comprimento do pronoto, arqueado, subcilíndrico e liso nas fêmeas, carenado e finamente piloso nos intervalos nos machos; na base há uma pequena covinha funda na separação interocular. Antenas normais, escuras, clava arruivada. Olhos estreitamente separados pela carena frontal do rostro por cerca de quinta parte da largura do rostro; covinha alongada, nítida na base da carena. Pronoto fortemente rugoso, rugas em declives, como de costume. Escudo pequeno, hemisférico, luzente.

Élitros muito mais largos do que o protórax; ombros arredondado-retangulares, sem nenhuma saliência na margem; lados no terço basal subparalelos, em seguida arredondado-convergentes para o ápice, que é estreito, em conjunto arredondado; estrias no dorso formadas por covas pronunciadas grandes, especialmente as subbasais; nas estrias 1, 2 e 3 as covas são largas e duas vezes mais longas, espaços intervalares estreitos e planos no alinhamento. Fêmures nos três pares fortemente engrossados e unidentados no meio; tíbias sulcadas em sentido longitudinal, engrossadas internamente no meio, as posteriores mais retas, angulosas na base.

Face ventral covinhada; escamas minúsculas, brancas nas

covinhas; segmentos abdominais 3 e 4 arqueados no bordo posterior.

Compr. 3 mm., largura 1,4 mm.

Descrito sobre 7 espécimens, machos e fêmeas, coletados pelo autor em Junho de 1946, em Soure, Baía, em "cipó cururú", *Serjania* sp., Sapindácea, a mesma em que se cria *Ch. serjaniae* e provavelmente com a mesma biologia.

Cótipos na coleção do autor, no Chicago Natural History Museum e na Escola Nacional de Agronomia, Rio de Janeiro.

Chalcodermus stigmatophylli, n. sp.

Metálico-bronzeado, inclusive as patas; rostro preto, lustroso, sem reflexo metálico ou ligeiramente na base; élitros avermelhados, com máculas escuras, mal definidas, e mais lustrosas; nos intervalos uma carreira de escaminhas esbranquiçadas fusiformes, mais densas, visíveis e proeminentes na metade distal, nas áreas menos pigmentadas, formando máculas pilosas.

Rostro robusto, arqueado, escurado, estriado lateralmente, do comprimento do pronoto. Antenas ruivas, módicas, comuns. Olhos separados por uma placa opaca interocular, um tanto saliente sobre o nível dos olhos, terminada quase abaixo dos olhos com desnível da superfície para a base rostral. Lados do pronoto paralelos nos dois terços basais, convergentes em seguida, sem formar colo pronunciado; rugosidade no dorso divergente, partindo da base e linha mediana; lóbulos oculares pronunciados, o que discorda do característico genérico. Escudo pequeno, hemisférico, lustroso.

Élitros mais largos do que o pronoto; ombros com forte dente obtuso triangular, proeminente do lado; margem em seguida convexa convergente para o ápice estreito, que é arredondado em conjunto; estrias marcadas por covas pronunciadas. Fêmures nos três pares unidentados; tíbias um tanto arqueadas e unidentadas internamente no meio. Face ventral e fêmures covinhadas e com escamas esparsas curtas.

Compr. 4 mm., largura 2 mm.

Descrito sobre 3 espécimens, coletados pelo autor, em Julho de 1947, em Itaberaba, Baía, na Malpighiácea *Stigmatophyllum* sp., trepadeira comum nas caatingas. Os insetos podam as pontas novas da trepadeira, como é o caso de outros "podadores".

Cótipos na coleção do autor e no Chicago Natural History Museum.

A espécie caracteriza-se pela separação dos olhos, base do rosto, lóbulos oculares, ombros fortemente dentados, pilosidade nos élitros, etc.

Chalcodermus heteropteri, n. sp.

Avermelhado; máculas escuras, mal definidas, nos élitros; lustroso, sem brilho metálico.

Rosto subreto, cilíndrico, estriado, mais longo do que a cabeça e o pronoto juntos; antenas ligeiramente postmedianas, ruivas, amarelo-pilosas. Olhos aproximados na fronte, porém separados pela carena rostral que atinge a fronte ao nível superior dos olhos. Cabeça densamente covinhada, opaca. Pronoto mais largo do que longo, subtriangular, arredondado-convergente, formandó um colo módico; rugosidade como de costume; bordo apical mais escuro; lóbulos oculares módicos. Escudo alongado-convexo. Élitros com ombros oblíquos, formando largo ângulo obtuso, não dentiforme; margens subretas convergentes para o ápice estreito onde são isoladamente arredondadas; estrias um tanto afundadas, grossamente covinhadas; um colorido escuro, com contornos irregulares, acompanha a sutura; há uma mácula irregular transversal um pouco antes do meio, e outra na parte pre-apical; áreas avermelhadas, menos pigmentadas, com escamas esparsas minúsculas brancas escamosas. Face ventral e patas com pêlos amarelos esparsos. Fêmures unidentados no meio da face interna. Tíbias arqueadas, unidentadas, as trazeiras subretas.

Compr. de 4,5 a 5 mm., largura de 2,3 a 2,6 mm.

Descrito sobre 3 espécimens, coletados em Porto Alegre, em Abril de 1946 em *Heteropteris aenea* Griesb., Malpighiácea e recebidos sob o n.º 1947 do Pe. Pio Buck, Colégio Anchieta, Porto Alegre.

Cótipos na coleção do autor e no Chicago Natural History Museum.

Hustache descreveu *Chalcodermus rubricatus*, originário do Brasil (Diamantina) e da Bolívia. A presente espécie corresponde à descrição de *Ch. rubricatus* quanto ao colorido, pilosidade, etc. A espécie de Hustache, porém, tem os olhos contíguos na fronte, e em nossa espécie os olhos são francamente separados pela carena do rosto; o ângulo humeral é um tanto saliente, quando em *rubricatus* são "les epaules oblíques, brièvement arrondies, nullement saillantes en dehors". Hustache nada diz so-

bre os ápices dos élitros. Geralmente os ápices são em conjunto arredondados ou truncados. No caso da nossa espécie os ápices são individualmente arredondados, característico importante que não podia passar despercebido a observador tão fino.

Chalcodermus vochysiae, n. sp.

Escuro-ferrugíneo, com lustre metálico fraco; ápice do pronoto, ombros, duas faixas irregulares transversais nos élitros e linha sutural pretos; escaminhas esbranquiçadas minúsculas nas partes menos pigmentadas dos élitros.

Rostro vermelho, ápice preto; forte, arqueado, distintamente estriado, pouco mais longo do que cabeça e pronoto juntos. Antenas postmedianas, ruivas; primeiro segmento do funículo longo, o segundo menos alongado. Olhos contíguos numa pequena parte em cima ou muito pouco separados pela linha estreita da carena do rostro; a base do rostro, no intervalo interocular, forma um ângulo agudo, carenado e lustroso no meio, separando os olhos nos três quartos inferiores frontais. Cabeça densamente covinhada, subopaca. Pronoto com os lados paralelos no terço basal, convexos e convergentes em seguida, formando um colo pouco pronunciado; lóbulos oculares módicos; dorso avermelhado-escuro rugoso, ápice enegrecido. Escudo escuro, ovóide, convexo. Élitros com ombros oblíquos e dente lateral obtuso e curto, saliente lateralmente; lados em seguida convexos convergentes, ápices estreitos e isoladamente arredondados; dorso com estrias pouco afundadas, fortemente covinhadas; escaminhas minúsculas irregularmente esparsas nos intervalos estreitos. Face ventral densamente covinhada, glabra. Patas concolores, fêmures e tíbias unidentados, tarsos pretos.

Compr. de 4 a 5 mm., largura de 2 a 2,5 mm.

Descrito sobre 4 espécimens, coletados em frutos de "canela rapadura", Vochysiácea, em 7-7-1946, no Estado de Minas pelo Dr. Ezequias Heringer e fornecidas sob o n.º 1039.

Cótipos na coleção do autor e no Chicago Natural History Museum.

Difere de *Chalcodermus rubricatus* Hust. pela separação dos olhos e pelo ângulo proeminente dos ombros.

Chalcodermus capichaba, n. sp.

Avermelhado-escuro, pouco lustroso, não metálico, élitros mais claros; máculas pretas no ombro, na metade da margem externa, na margem preapical e ao longo da sutura.

Rostro vermelho, fino desde a base, cilíndrico, subreto, liso, subperpendicular à cabeça, formando abaixo dos olhos um forte ângulo. Antenas ruivas, medianas, os quatro segmentos basais do funículo alongados, dos quais o primeiro de comprimento dos dois imediatos. Olhos separados pela base deflexa do rostro, que é estreitada na junção com a fronte. Cabeça densamente esculpura, opaca. Pronoto com a rugosidade de costume, lados convexos convergentes, formando um colo curto, preto; lóbulos oculares evidentes. Escudo preto, ovóide, convexo, lustroso. Élitros com ombros pouco oblíquos, arredondados, não proeminentes nos lados, convergentes subretos em seguida, formando ápices estreitos, isoladamente cônico-obtusos na ponta; estrias um tanto afundadas, distintamente covinhadas; áreas menos pigmentadas com escamas curtas esparsas esbranquiçadas. Face ventral com escamas curtas esparsas. Fêmures e tibias nos três pares unidentados.

Compr. 6 mm., largura 3 mm.

Descrito sobre 1 espécimen, coletado pelo autor em Vitória, Estado do Espírito Santo.

Difere de *Ch. rubricatus* Hust. pelos olhos não cônatos, rostro fino, tamanho maior.

Chalcodermus gibbifrons, n. sp.

De cor uniforme bronzeado-lustroso, fêmures e tibias com reflexo parcial azul-metálico; glabro; no intervalo interocular, na base do rostro, uma gibosidade cônico-alongada, proeminente.

Rostro preto, bronzeado na base, moderadamente robusto, levemente arqueado, esculpado, cilíndrico, lustroso, do comprimento de cabeça e pronoto juntos. Antenas ruivas, normais; segmento basal do funículo do comprimento dos três imediatos, os seguintes curtos, subiguais em comprimento. Olhos aproximados na parte alta, estreitamente separados por um pequeno prolongamento frontal, seguido de giba mais larga e proeminente na base do rostro. Pronoto rugoso, lados convexos convergentes, angulosos e estreitados em seguida sem formar colo; lóbulos oculares desenvolvidos. Escudo ovóide, convexo. Élitros com ombros oblíquos largamente arredondados, sem dente ou proeminência lateral, lados subretos convergentes para os ápices estreitos, obtusos, cônicos individualmente; estrias não afundadas, marcadas por covinhas grandes alongadas; intervalo terceiro na se-

gunda metade dos élitros obtusamente carenado. Fêmures e tíbias unidentados nos três pares.

Comprimento 6 mm., largura 3 mm.

Descrito sobre 1 exemplar, coletado pelo autor em Outubro de 1945, em Belmonte, Baía.

Holótipo na coleção do autor.

A espécie caracteriza-se essencialmente pela gibosidade interocular na base do rostro.

Interesse Econômico do Gênero *Chalcodermus*.

Em nossos escritos anteriores divulgamos a biologia de *Chalcodermus angulicollis* Fabr., séria praga dos feijões do gênero *Vigna*, ou "feijão de corda" como é conhecido na Baía. As larvas criam-se dentro dos caroços ainda verdes. A distribuição da espécie é vasta, sendo registado nos Estados sulinos do Brasil e na Argentina. Em feijões do gênero *Phaseolus* descobrimos a espécie *Chalcodermus yvensi* Bond., que decepa as vagens verdes e cujas larvas se criam em partes decepadas, caídas no chão.

Descobrimos na Baía a biologia de *Chalcodermus bondari* Mshl., podador do algodão, e de *Chalcodermus marshalli* Bondar, podador do cacau, ambas as espécies decepando brotos novos, nos quais as larvas se criam, evoluindo na terra. São quatro pragas economicamente importantes. Ao gênero adicionamos mais 8 espécies novas, de cinco das quais conhecemos a biologia.

Em resumo podemos dizer que as larvas vivem em tecidos novos, viçosos, com a vida da planta suspensa no momento da postura dos ovos. O desenvolvimento das larvas é rápido, de poucos dias, emigrando as larvas para a terra, onde completam a metamorfose.

Com observações acuradas, poderão ser descobertas ainda muitas e interessantes espécies deste gênero.

Bibliografia.

- Bondar, Gregório, Nova praga do algodoeiro na Baía, "O podador" *Chalcodermus bondari* Mshl. — Boletim do Laboratório de Patologia Vegetal, n.º 6, 1928, Baía.
— *Chalcodermus angulicollis* Fabr. — Bol. Lab. Pat. Veget., n.º 9, 1930, Baía.

- O podador de cacau, *Chalcodermus marshalli* Bond. — *Rodriguesia*, n.º 3, 1935, Rio de Janeiro.
- Insetos daninhos e parasitas do cacau na Baía. — *Bol. n.º 5 do Instituto de Cacau da Baía*. Baía, 1939.
- *Notas Entomológicas da Baía*, Parte VIII, *Rev. Ent.*, vol. 12, fasc. 3, 1941; Parte XII, *Rev. Ent.*, vol. 14, fasc. 1-2, 1942; Parte XVI, *Rev. Ent.*, vol. 16, fasc. 3, 1945; Parte XVII, *Rev. Ent.*, vol. 17, fasc. 1-2, 1946.
- Casey, Thos., *Memoirs on the Coleoptera X*, 1922. *Studies in the Rhynchophorous subfamily Barinae of the Brazilian Fauna*. — Lancaster, Pa.
- Costa Lima, Angelo M. da, *Terceiro Catálogo dos Insetos que vivem nas plantas do Brasil*. — *Escola Nacional de Agronomia*, Rio, 1936.
- Hustache, A., *Curculionides de l'exploration Lizer-Deletang au Chaco Bolivien*. — *Ann. Soc. Cient. Agr.* vol. XCVI.
- *Curculionidae: Cryptorrhynchinae*. — *Col. Catal. W. Junk*, pars 151, 1936.
- *Curculionidae: Barinae*. — *Col. Cat. W. Junk*, pars 163, 1938.
- Klima, A., *Curculionidae Pyropinae*. — *Col. Cat. W. Junk*, pars 146, 1936.
- Lacordaire, Th., *Genres de Coléoptères*, tomo 6 e 7, Paris, 1866.
- Monte, Oscar, *Duas novas espécies de Diorymerellus (Col. Curc.) prejudiciais às Orquídeas*. — *Arq. Inst. Biol.*, V, 13, 1942, São Paulo.
- Ogloblin, A., *El curculionido Podador del Algodonero Chalcodermus bondari Mshl.* — *Ból. Min. Agr.*, 1934, Buenos Aires.
- Pyenson, Louis, *Notes on the biology of the cotton Pruner Chalcodermus bondari Mshl.* — *Journ. of Ec. Ent.*, 1939.

The Genus *Frankliniella* Karny, with Keys for the Determination of Species (Thysanoptera)

By Dudley Moulton, U. S. Dept. of Agriculture,
Redwood City, California.

(With 43 figures)

Introduction.

The genus *Frankliniella* was erected by Dr. H. Karny in 1910 (Mitt. Nat. Ver. Univ. Wien, 8, 2, p. 46), in a footnote in connection with the description of a new species of the then recognized genus *Euthrips*. No genotype was specified and names of species were not listed until 1912 when Dr. Karny published a key for the known species which he believed should be included. Dr. Karny originally stated that the genus *Frankliniella* belonged in the *Thrips-Taeniothrips* complex but was distinctive in having a well developed seta on each fore angle of the prothorax. Prior to this time, Uzel (1895, Mon. Ord. Thys., p. 94) included in the genus *Physapus* DeGeer, 1773, and Amyot and Serville, 1843, (but emended by Uzel to *Physopus*) such species as *tenuicornis*, *pallida* and *nigriventris* each with prominent setae on fore angles of the prothorax, together with species of *Taeniothrips*, *Odontothrips* and others. Dr. Hinds placed four species, *tritici*, *occidentalis*, *fuscus* and *nervosus* in the genus *Euthrips* as this was the best analysis that could be made at that time. However, *Physapus* DeGeer is preoccupied by *Physapus* Sulzer, 1761, *Physopus* Uzel by *Physopus* Rafinesque, 1817 and *Euthrips* Targ. Tozz. has been shown to be a synonym of *Thrips* in the strict sense.

The species *Fr. achaeta* Hood is a transitional form between the genera *Taeniothrips* and *Frankliniella* since the setae on head and anterior angles of prothorax are greatly reduced.

The literature pertaining to the genus is scattered through many papers and scientific journals and there is no present paper which would aid the student or investigator in the classification of its species. The purpose of this study is to bring this information together in keys but for the final determination of a species reference should be made to original descriptions if such are available.

It is interesting to note here that Dr. H. Priesner (Bull. Soc. Géol. France, 1935, p. 474) described a species of *Frankliniella* which was found in a collection of fossil insects taken from excavations in France. Photographs of these specimens

show the generic characters clearly displayed and tell us that members of this genus as we now recognize it, were well established more than a million years ago when these fossil individuals lived.

Genus *Frankliniella* Karny

- 1910, *Frankliniella* Karny, Mitt. Nat. Ver. Univ. Wien., vol. 8, 2, p. 46.
 1923, *Frankliniella*, Knechtel, Thys. Roman., p. 151.
 1926, *Frankliniella*, Priesner, Mon. Thys. Europas, p. 246.
 1933, *Frankliniella*, Moulton, Rev. de Ent., vol. 3, 1, p. 109.
 1937, *Frankliniella*, Hood, Rev. de Ent., vol. 7, 1, p. 96.
 Note: The genus includes *Physapus* in part, Uzel Mon., 1895, and *Euthrips*, as listed in Hinds Mon., 1902.

Genotype: *Thrips intonsa* Trybom, (Figs., 1, a, b, c, 6).

Head usually wider than long; interocellar and postocular setae normally well developed; eyes normal, ocelli always present in macropterous, sometimes wanting in brachypterous forms. Antenna with eight segments, 3 and 4 with forked sensecones, 7 and 8 smaller, forming a style; mouthcone moderately stout, rounded; maxillary palpus with 3, labial palpus with 2 segments.

Prothorax wider than long with prominent setae on anterior margin and angles and a pair on each posterior angle, also usually a series of five minor setae on either side along posterior margin, the second of which is longer than the others. In the Minuta Group, the interocellars, postoculars and setae on anterior margin and angles are greatly reduced. Legs normal, fore tibiae and tarsi unarmed; wings nearly pointed with fringes on both anterior and posterior margins, each fore wing with two longitudinal veins which like the costa, have regularly placed setae.

Abdomen normal with short setae at sides and longer ones on terminal segments; tergum 8 with or without a comb along posterior margin.

Male smaller than female and usually lighter in color; setae on abdominal segments 9 and 10 more or less short and stout, those on tergum 9 vary in length and position; sterna 3-7 often with sense areas which vary in size and form.

Many of the earlier descriptions of thrips were based largely on color and did not include characters which are now considered essential for the identification of species. A general grouping into light or dark colored forms is used in this paper; "light colored" is used when a species is without color, mostly yellow or shaded with orange, with brown coloring only in antennal segments, or the body may be weakly shaded with gray or brown but not

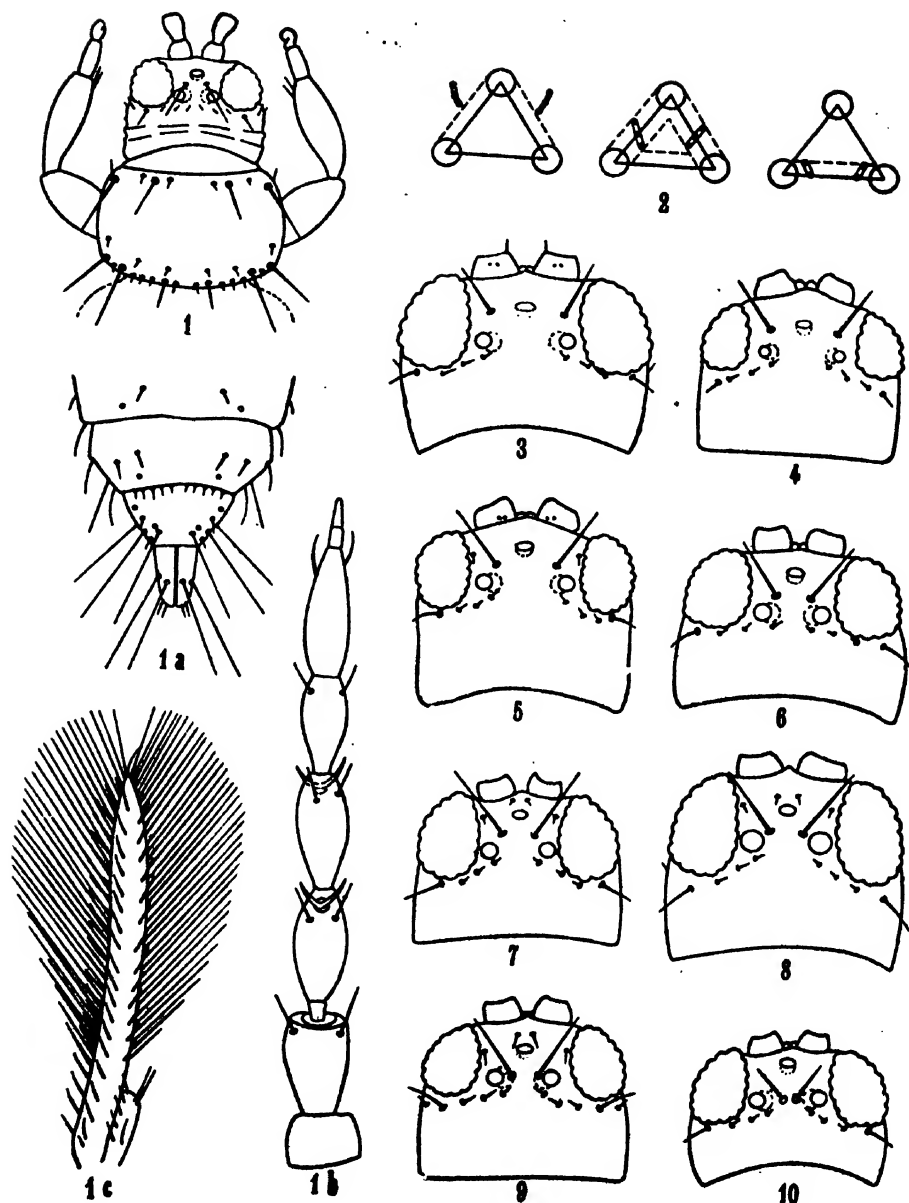


Fig. 1. *Fr. intonsa* Trybom, genotype; ♀, head and prothorax; a, end of abdomen; b, right antenna; c, right fore wing. — Fig. 2. Diagram showing position of interocellar setae. — Fig. 3. *Fr. insularis* Franklin; ♀, head, showing position of interocellar setae. — Fig. 4. *Fr. unicolor* Morgan; ♀, head, showing position of interocellar setae. — Fig. 5. *Fr. tenuicornis* Uzel; ♀, head, showing position of interocellar setae. — Fig. 6. *Fr. intonsa* Trybom; ♀, head, showing position of interocellar setae. — Fig. 7. *Fr. cestrum* Moulton; ♀, head, showing position of interocellar setae. — Fig. 8. *Fr. setipes* Bagnall; ♀, head, showing position of interocellar setae. — Fig. 9. *Fr. ipomoeae*, new species; ♀, head, showing position of interocellar setae. — Fig. 10. *Fr. schultzei* Trybom; ♀, head, showing position of interocellar setae.

greatly darkened; "dark colored" indicates that the prevailing color is deeper than yellow, from brown to blackish brown or black. A few species are entirely light colored except the end of the abdomen which may be dark brown; these will be found among the dark colored species. Immature specimens are usually without color or much lighter than normal for a species and it is often difficult to place them.

The position of the interocellar setae may be determined if an imaginary triangle is formed by lines connecting the centers of the three ocelli. Position 1, as used here, indicates that the interocellars are placed laterad of the anterior ocellus and entirely outside the triangle; position 1-2, that they are on a line connecting the outer margins of anterior and posterior ocelli; position 2, when they are placed within the triangle; position 2-3, when these setae are approximately on a line connecting the anterior margins of posterior ocelli and position 3, when they are located immediately between the posterior ocelli (Fig. 2). The interval between the bases of these setae will vary with their position and the size of the specimen but with few exceptions, it will be fairly constant for any individual species.

The antennae may be relatively short and compact or long and slender but whatever the shape, the third segment is especially characteristic; it may be short, reasonably broad and rounded at the apical end; it may be longer and more slender, sometimes constricted vase-like apically; but this size and shape is usually constant for a species. The pedicel of this third segment, minute as it is, assumes a major importance. It is simple in the *Intonsa Group*, with almost parallel sides or somewhat enlarged in apical half; in the *Tritici-Cephalica Group*, the apical half of the pedicel is distinctly swollen or angulate and may have the form of a sharp-edged, saucer-like ring; in the *Cephalica Series* of this group, the second antennal segment is usually thickened and produced to extend over the base of the third segment.

The relative lengths of major setae on head and prothorax are also important. The presence or absence of a comb on tergum 8 is often difficult to determine especially in light colored specimens although it can usually be seen when fully developed; sometimes the microsetae are widely spaced or developed only at the sides and wanting in the middle, or the comb may be entirely wanting.

"Normal variation" is unfortunately an intangible and not

susceptible of an exact definition; it is that variation which one learns to expect in any given group. Each species is not cast in a single mold and is subject to environmental influences even as the amount of food obtained causes variation in the size of individuals. It should be mentioned here that great care should be taken in the preparation of slide mounts as for example, too much pressure applied to the cover glass may distort a specimen, changing its shape, thus destroying its value for careful examination.

Key to Groups and Series

1. Interocellar setae minute, inconspicuous, normally less than 28 microns in length; postoculars, also setae on anterior margin and angles of prothorax usually greatly reduced; antennal segments moderately short and compact, pedicel of third antennal segment simple. (Figs. 11, a, b; 12, a, b, c.)..... *Minuta Group* 5
- Interocellars normally developed, 30 microns or longer..... 2
2. Pedicel of third antennal segment simple, without clearly defined thickening or sharp-edged ring. (Fig. 1)..... *Intonsa Group* 3
- Pedicel of third antennal segment with a more or less clearly defined thickening which may appear as a swelling, an angulation or a sharp-edged, saucer-like ring. (*F. curiosa* Priesner excepted) (Fig. 34) *Tritici-Cephalica Group* 4
3. Head normally flattened in front or weakly angular between bases of antennae; cheeks nearly straight or slightly arched but not conspicuously narrowed posteriorly. (Fig. 1, a, b, c, 6).....
Intonsa Group, Intonsa Series 15
- Head broadened, sometimes depressed in front or the depressed antennal pits forming in part the frontal outline of head; cheeks nearly straight to clearly arched, conspicuously narrowed posteriorly. (Figs. 3, 27, a, b)..... *Intonsa Group, Insularis Series* 83
- Head somewhat produced in front of eyes and more or less angular; cheeks nearly straight and parallel. (Figs. 4, 5, 32).....
Intonsa Group, Tenuicornis Series 97
4. Second antennal segment not thickened or produced on dorsal side at apex. (Fig. 34)..... *Tritici-Cephalica Group, Tritici Series* 104
- Second antennal segment thickened on dorsal side at apex and usually projecting over base of third segment; the two apical setae strong and conspicuous. (Fig. 39)
Tritici-Cephalica Group, Cephalica Series 128

Key to Species.

Minuta Group.

5. Third antennal segment (III in following keys), 33-34 microns long 6
- III, 44-50 microns long 13
6. Interocellar and postocular setae minute, barely visible* 7
- Interocellar and postocular setae 10-16 microns in length..... 12
7. Setae on anterior margin and angles of pronotum also barely visible; III, 36-40 microns long; setae on posterior angles of prothorax 44/33. Color dark brown; antenna brown, segment 3

yellowish, 4 paler than the others; legs dark brown with fore tibiae and tarsi yellowish; fore wings dark brown with a pale spot beyond scale. (Fig. 11, a, b, c) (1,2 mm). Colorado, Canada.....

- (1) *achaeta* Hood
- Setae on anterior margin and angles of pronotum at least 10-20 microns in length 8
 - 8. Setae 2 and 4 in series along posterior margin of pronotum noticeably longer and stronger than others in the series..... 9
 - Only seta 2 in the series longer than the others..... 10
 - 9. Color uniformly brown including antennae, legs and wings with only fore tibiae and tarsi lighter; interocellars, position 2, interval 26-33 microns; seta formula: prothorax, -/23; 33/30. Male somewhat lighter colored than female. (0,8-1,2 mm). (Fig. 12, a, b, c). Can., U. S., Mex. (2) *minuta* Moulton
 - Colored like the species; interocellars: position 2-3, on a line connecting upper margins of posterior ocelli, interval 16 microns; setae formula: prothorax, 10/30; 43/36: Colombia, S. A..... *minuta* f. *colombiensis*, n. f.
 - Male. Clear golden yellow including legs and wings, pterothorax orange yellow, antennal segments: 1, whitish yellow, 2 yellow, tipped with orange, 3-5 mostly yellow, 6-8 light brown. (1,2 mm.) Zampoala, Mex. *minuta* f. *luminosa*, n. f.
 - Color as in *minuta* but with antennal segments 3 and 4 abruptly clear yellow, 5 brownish yellow; posterior margin of seventh tergum more or less serrate, irregular in the middle, more distinct at sides, some teeth bearing microsetae like comb on eighth tergum. III, 43 microns; setae on posterior angles of prothorax 50/40 microns. (1,4 mm). New Mexico..... (3) *watsoni*, n. sp.
 - 10. Third sternum in female with a tympanum. Color approximately as in *minuta* but with antennal segment 3 lighter, III, 36-45 microns; setae on posterior angles of prothorax 40/30 microns. (1,2 mm). Peru, S. A. (4) *tympanona* Hood
 - Third sternum without tympanum 11
 - 11. Setae on anterior margin and angles of prothorax 12/15 microns. Color yellow, pterothorax bright orange, three or four terminal abdominal segments shading to dark brown; legs pale yellow, all femora shaded grayish brown on upper margins; fore wings brownish yellow; antennal segments, 1 colored like head, 2 darker, 3 shaded with grayish, 4-8 yellowish brown. (0,9 mm). Trinidad.. (5) *curta* Hood
 - Setae on anterior margin and angles of prothorax 20/30 microns. Color light brown including fore wings and all femora; tibiae and tarsi yellow with tibiae shaded in the middle. (1,2 mm). So. Amer. (6) *oxyura* Bagnall
 - Terminal abdominal segments darkened.... *oxyura* f. *adusta* Pv.
 - 12. Seta formula: head, 10/10; prothorax, 20/36, 50/43. III, 33 microns. Color light orange yellow with end of abdomen brownish; legs yellow with all femora shaded on outer margins; wings clear; antennae brown with segments 2 and 6-8 darkest. (0,8 mm). Brazil. (7) *fuscicornis* Moulton
 - Seta formula: head, 16/16; prothorax, 33/33, 50/46; III, 42 microns. Color, head and prothorax chestnut brown, pterothorax more strongly shaded with orange, abdomen brown; fore femora dark brown in basal two-thirds, clear yellow in apical third and along inner margins, middle and hind femora dark brown in the middle, cleared to yellow at both ends; fore tibiae and all tarsi clear yellow, middle and

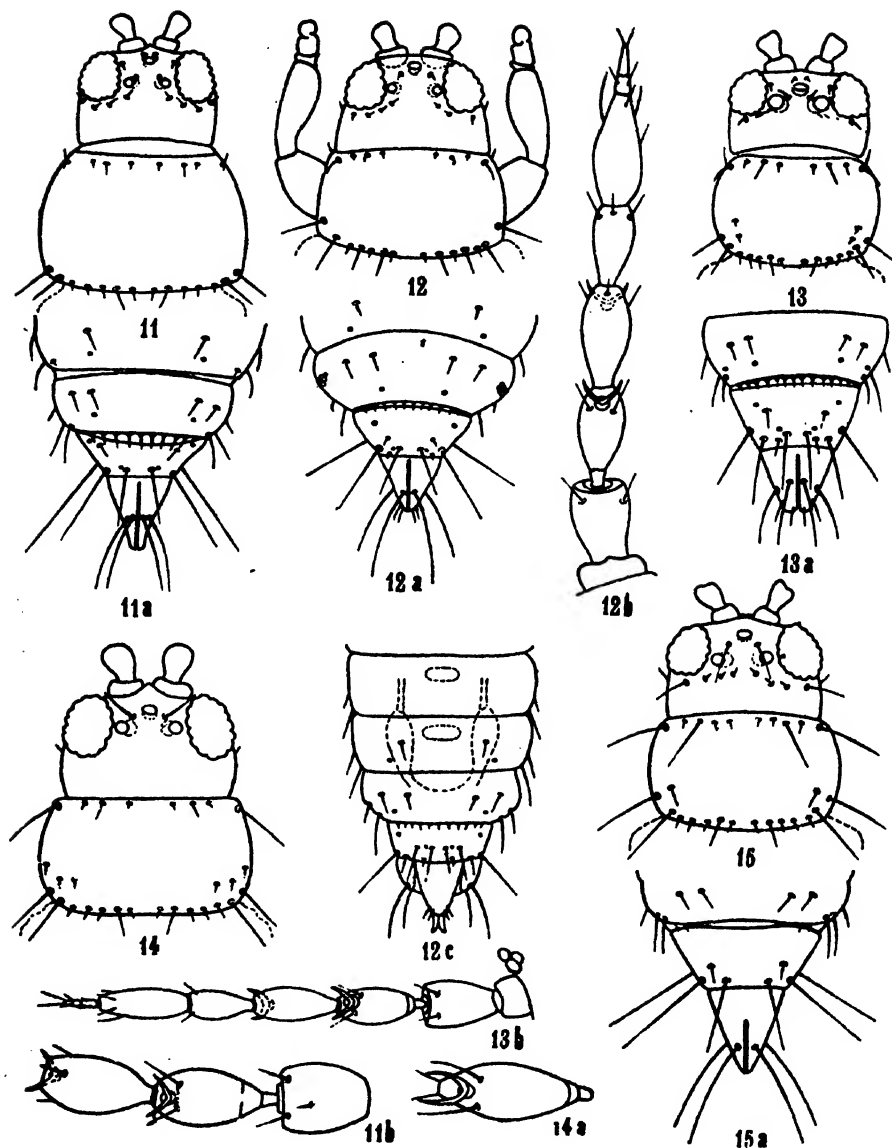


Fig. 11. *Fr. achaeta* Hood; ♀, head and prothorax; a, end of abdomen; b, antennal segments 2-4. — Fig. 12. *Fr. minuta* Moulton; ♀, head and prothorax; a, end of abdomen; b, right antenna; c, ♂, end of abdomen. — Fig. 13. *Fr. varitibia* new species; ♀, head and prothorax; a, end of abdomen; b, right antenna. — Fig. 14. *Fr. vaccinii* Morgan; ♀, head and prothorax; a, end of abdomen. — Fig. 15. *Fr. inornata*, new species; ♀, head and prothorax; a, end of abdomen.

hind tibiae dark brown in the middle, cleared to yellow at both ends; fore wings clear yellow in basal fourth, washed with brown beyond; antennal segments 1, 2 and 6-8 dark brown, 3-5 mostly yellow. (1.2 mm). (Figs. 13, a, b, c). Mexico.....

(8) *varitibia*, n. sp.

13. III, 44 microns; seta formula: head, 19/21; prothorax, 27/28, 49/46. Color dark brown including all femora but these yellowish apically, fore pair paler along inner surface; fore tibiae largely yellow with a brown cloud at middle, middle and hind tibiae largely brown but paler or yellow at either end; tarsi yellow; fore wings uniform light brown; antennal segments 1, 2 and 6-8 dark brown, 3 and 4 dark golden yellow, 5 largely brown but with yellow pedicel. (1.1 mm). Peru, S. A. (9) *trisetosa* Hood
- III, 48-50 microns 14
14. Seta formula: head, 10/20; prothorax, 20/36; 66/56. Color uniformly dark brown including antennae and legs except antennal segment 3, fore tibiae and all tarsi which are yellow; fore wings uniformly light brown. (1.5 mm). Brazil, S. A. (10) *serrata* Moulton
- Seta formula: head, 28/27; prothorax, 39/59; 66/58. Color dark brown; fore femora dark brown, more or less yellowish apically, anterior pair paler, yellow along inner surface; tibiae mostly yellow, clouded with brown in the middle; tarsi yellow. (1.3 mm). Peru, S. A. (11) *maculipes* Hood

Intonsa Group, Intonsa Series.

15. Light colored species from North America, including Panama, West Indies and Trinidad 16
- Light colored species from outside North America. 34
- Dark colored species from North America including Panama, West Indies and Trinidad 42
- Dark colored species from outside North America. 62

Light Colored Species from North America, Panama, West Indies and Trinidad.

16. Third antennal segment normally 39-46 microns in length. 17
- Third antennal segment normally 48-53 microns in length. 26
- Third antennal segment normally 53-63 microns in length. 31
17. Interocellar setae in position 2, their interval 20-23 microns (Fig. 2) 18
- Interocellar setae in position 2-3 or 3, interval 16-18 microns. . . 25
18. Comb on eighth tergum fully developed, its microsetae long, closely placed (Figs. 1a, 12a, 13a) 19
- Comb on eighth tergum usually wanting or if present, its microsetae weak, widely spaced or wanting in the middle. (Figs. 15a, 25a, 26a) 23
19. Sixth antennal segment uniform brown or paler only at extreme base 20
- Sixth antennal segment distinctly paler or clear yellow in basal third or fourth 22
20. Postoculars and setae on anterior margin of prothorax small, subequal, 16 microns; on anterior angles 66, posterior angles 66/50 microns; two minor setae between antero-marginals. Color brownish yellow, ocellar pigment deep red. (1.15 mm). (Figs. 14, a). Maine, Washington, D. C. (12) *vaccinii* Morgan
- Postoculars and setae on anterior margin of prothorax longer, four minor setae between antero-marginals 21
21. Seta 1 on ninth tergum 100 microns or longer; lower vein of fore wing with 9-13 setae. Color, pale brownish yellow, thorax darker,

- legs concolorous with body, ocellar pigment orange. (1.05 mm). Tenn., Wash., D. C..... (13) *runneri* Morgan
- Seta 1 on ninth tergum 80-83 microns; lower vein of fore wing with 13-16 setae. Color pale grayish yellow to nearly clear, ocellar pigment orange. (1-1.2 mm). Ariz., Cal., Mex..... (14) *gossypiana* Hood
22. Seta formula: head, 33-40/16-23; prothorax, 23-36/30-46; median on ninth tergum, 93-100 microns. Color pale yellow, body setae yellowish brown, ocellar pigment orange; antennal segment 1 nearly colorless, 2 brownish yellow, 3-5 clearer at base, grayish brown apically, 6-8 gray-brown with 6 paler to clear yellow in basal third. The important characters distinguishing this species are the small postoculars, small setae on anterior margin of prothorax and the clear yellow basal third of sixth antennal segment. (1.0 mm). Colo., Iowa, Kansas. (15) *exigua* Hood
- Seta formula: head, 42/28; prothorax, 50/56; 56/-; median on ninth tergum 86 microns. Color approximately as in *exigua* but with antennal segments 1 and 2 whitish yellow, 2 without deeper shading; ocellar pigment orange-red. (0.97 mm). Mexico..... (16) *rostrata* Priesner
23. Postoculars minute and inconspicuous; pronotal setae short, stout, inner pair on posterior angles longest. Color pale yellow, thorax obscurely mottled with brown, apical abdominal segments darker, with an irregular blotch on each tergum. (1.1 mm). Texas..... (17) *genuina* Hood
- Postoculars longer and more conspicuous, 25-28 microns..... 24
24. Setae on anterior margin of prothorax 22 microns, shorter than pair on anterior angles, these 36-39 microns. Color clear yellow, thorax and tip of abdomen orange, ocellar pigment orange; antennae reasonably dark, segment 1 almost clear, 2 yellowish brown, 3 and 4 darker, each cleared at base, 5 gray-brown with almost clear base, 6-8 gray-brown. (1.17 mm). Mexico. (18) *molesta* Priesner
- Setae on anterior margin and angles of prothorax nearly subequal, 43 microns; comb on eighth tergum wanting or its microsetae weak or apparent only at sides. Color clear to sulphur yellow including legs and fore wings, pterothorax darker or shaded with dull orange; antennal segments 1 clear, 2 brown, 3 yellow in basal half otherwise light grayish brown, 4 yellowish in basal third and 5 in basal half or 5 may be almost entirely clear and darkened only at extreme tip, 6 clearer at base otherwise like 7 and 8 grayish brown; ocellar pigment orange. (1.16 mm.) Southern U. S., Mex., Cuba..... (19) *inornata* Moulton
25. Comb on eighth tergum fully developed, sparse; seta formula: head 46/36; prothorax, 56/70; 70/60. Color orange yellow, including legs, fore wings clear, ocellar crescents orange; antennal segments, 1 yellow, 2 brownish, darker than 1, 3-5 mostly clear, shaded brown apically, 6 cleared in basal fourth otherwise like 7 and 8 brown. (1.17 mm.) (Figs. 16, a, b, c). Haiti..... (20) *ipomoeae*, n. sp.
- Comb wanting on eighth tergum; seta formula: head, 23-30/23; prothorax, 33-40/43-50; 56-70/56. Color sulphur yellow including legs, wings clear; ocellar crescents light brown; antennal segments 1 and 2 nearly clear or 2 may be tipped with orange, 3-5 light grayish brown, shading deeper from 3 to 5, 6-8 grayish brown; cleared area at base of sensillum on antennal segment 6 elongate.

- (1.3-1.4 mm.) (Refer to key No. 40). Australia, Ceylon, India, Jamaica, New Guinea, Ter. Haw..... (21) *sulphurea* Schmutz
26. Major setae, body, legs and wings clear yellow; antennal segments 1-5 mostly clear yellow, 2 somewhat darker, 4 and 5 darkened apically, 6 yellow in basal fourth, 7 and 8 dark brown. Comb on eighth tergum fully developed. (1.1-1.3 mm.) N. A., S. A., Ter. Haw., Phil. IIs..... (22) *williamsi* Hood
- Major setae brown to dark brown; species clear yellow or shaded with orange or brown..... 27
27. Color clear yellow, body without orange or brown coloring or markings; antennal segments 1-3 nearly clear, 2 may be slightly shaded but not conspicuously darker than 1 or 3..... 28
- Color yellow, thorax shaded with orange or brown, abdomen darkened with gray or brown; antennal segment 2 clearly darker than 1 or 3 29
28. Color bright golden yellow without markings of any kind, legs paler than body; ocellar pigment bright red; seta formula: head, 43/36; prothorax, 62/57; 71/59; eighth tergum without comb; antennal segments, III, 52; VII, 13; VIII, 17 microns; only brachypterous form known. (1.0 mm.) Trinidad..... (23) *trinidadensis* Hood
- Color clear yellow, thorax deep yellow without orange, ocellar pigment red; antennal segments, 1 whitish, 2 whitish in basal half, colored apically, 3 light, more or less shaded in apical third, 4 shaded in apical half and 5 in apical fourth, 6-8 dark. Antennal segments, III, 50; VII, 7; VIII, 10 microns; comb on eighth tergum short and thin. (1.4-1.6 mm.) (Refer to key No. 32). Mexico..... (27) *gemina* v. *pseudotritici* Priesner
29. Interval between posterior ocelli more than 2.0 times their diameter; antennal segments, III, 48-50; VII, 10; VIII, 13 microns; eighth tergum without comb or this extremely weak and usually visible only at sides. Color clear in immature forms, to deep yellow, thorax usually shaded with orange, each tergum usually with dark line along anterior margin or there may also be a grayish band sometimes heavier in the middle; legs concolorous with head, wings washed with yellow; antennal segments, 1 like head, 2 brownish yellow, 3-5 mostly yellow, shaded brown in apical portions, or 5 only at extreme apical end, 6-8 grayish brown. (1.0-1.2 mm.) N. A..... (24) *occidentalis* Pergande
- Interval between posterior ocelli 2.0 times their diameter..... 30
30. Antennal segments, III, 51; VII, 10; VIII, 16 microns. Color lemon yellow, pterothorax shaded with orange, terga with gray blotches in the middle; wings uniformly pale brown; antennal segments, 1, bases of 3, 4 and 5 yellow, remainder dark. (1.3 mm.) Panama.... (25) *ameliae* Hood
- Antennal segments, III, 53; VII, 12; VIII, 20 microns. Interocellar setae in position 2-3, placed on a line connecting anterior margins of posterior ocelli, interval 20 microns; comb on tergum 8 complete, with long microsetae; fore vein of fore wing with 23, lower vein with 18 setae. Color golden yellow, thorax darker, each tergum with a double darkened line along anterior margin and a grayish brown blotch at middle which broadens in anterior half and extends laterally; antennal segments, 1 clear, 2 and 5-8 deep brown. (1.75 mm.) Mexico (26) *aurea*, n. sp.
31. Antennal segments, III, 53-60; VII, 10; VIII, 13 microns. Eighth tergum with sparse comb, its microsetae, set on broadened bases.

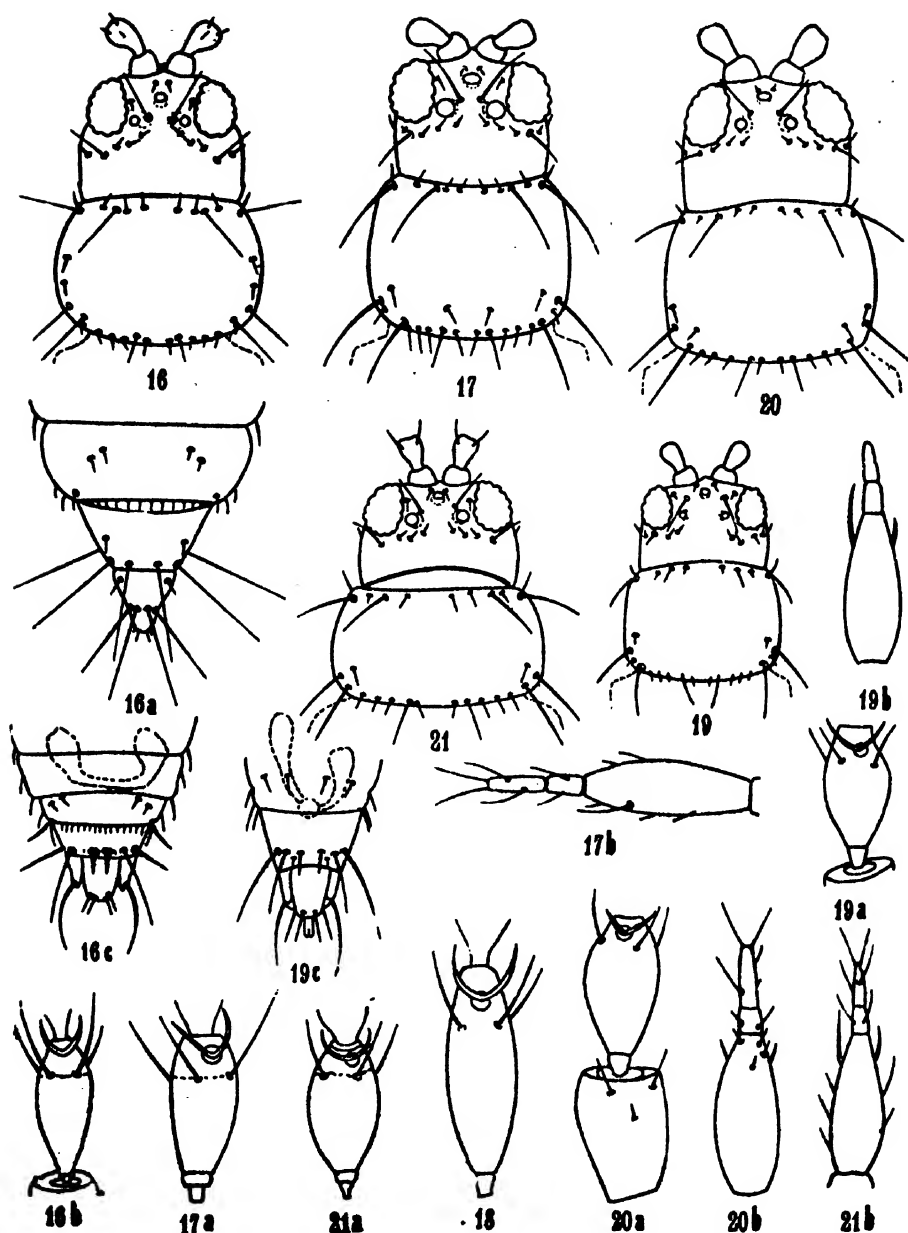


Fig. 16. *Fr. ipomoeae* new species; ♀, head and prothorax; a, end of abdomen; b, third antennal segment; c, ♂, end of abdomen. — Fig. 17. *Fr. aurea*, new species; ♀, head and prothorax; a, third antennal segment; b, antennal segments 6-8. — Fig. 18. *Fr. yuccae* Moulton; third antennal segment. — Fig. 19. *Fr. fusca* Hinds; ♀, head and prothorax; a, third antennal segment; b, antennal segments 6-8; c, ♂, end of abdomen. — Fig. 20. *Fr. dahliae*, new species; ♀, head and prothorax; a, antennal segments 2-3; b, segments 6-8. — Fig. 21. *Fr. dianthi*, new species; ♀, head and prothorax; a, third antennal segment; b, segments 6-8.

Color pale grayish yellow including legs and fore wings; antennal segments, 1 gray, 2-4 grayish yellow basally shading to light yellowish brown apically, 5 gray, darkened apically, 6-8 light brown. This appears to be an immature form of *californica*. (Refer to key No. 51). Can., West. U. S., Mex.

(53a) *californica* f. *trehernei* Morgan, n. comb.

- Antennal segments, 2 strongly colored, 3 distinctly colored at least in apical half, 4 in apical two-thirds, 5 cleared only at base; abdomen with brown blotches on terga; darker colored than *occidentalis* and a transitional form to *californica*.....

(53b) *californica* f. *dubia* Priesner, n. comb.

- Antennal segment III, 60-72 microns..... 32
- 32. Antennal segment III, 60-62; VII, 9; VIII, 12 microns. Color clear yellow, thorax not orange, antennal segments 1-3 clear yellow, or 2 weakly colored apically, 3 at apical end and 4 in apical half, 5 mostly light, darkened only at extreme tip. (Refer also to key Nos. 28 and 38). (1.29-1.52 mm.) Mex., S. A.....

(27) *gemina* Bagnall

- Separated from the species by the shorter third antennal segment, this being 50 microns. (Refer to key No. 28). (1.4-1.6 mm.) Mex...
gemina var. *pseudotritici* Priesner

- Antennal segment clearly darker than one or three..... 33

- 33. Antennal segment III, 60-63; VII, 10; VIII, 15 microns; segment 3 fully 3.0 times as long as wide. Color clear to sulphur yellow, thorax more or less shaded with orange, terga sometimes with grayish brown blotches; antennal segments 1, base of 2, basal half of 3 clear yellow, other portions of 2 and 3 dark brown. Lower vein of fore wing with 15 setae. (1.25 mm.) Cal., Colo., Utah.....

(28) *helianthi* Moulton

- Antennal segment III, 65-73; VII, 10; VIII, 18 microns; segment 3 more than 3.0 times as long as wide; lower vein of fore wing with 20 setae. Head and thorax orange yellow, head lighter, pterothorax darker, abdomen brownish yellow; antennal segments, 1 grayish yellow, 2 and 6-8 dark brown, 3 yellow in basal half shading to grayish brown, 4 yellow at base shading to dark brown in outer three-fourths, 5 yellowish in basal half, otherwise dark brown. (Refer to key 51 for darker individuals). (Fig. 19). (1.32 mm.) Cal., Utah (29) *yuccae* Moulton

Light Colored Species From Outside North America, Including Panama, West Indies and Trinidad.

- 34. Interocellar setae in position 1, interval 33 microns; antennal segments, III, 52; VII, 9; VIII, 16 microns; seta formula: head, 60/44; prothorax, 44/88; 92/92 microns; lower vein of fore wing with 13 setae. Color pale grayish yellow with head, thorax and outer margins of legs shaded with brown; setae clear; fore wings uniform pale gray; antennae dark brown with segments, 1 paler, 3 white in basal fourth. (1.3 mm.) (Refer to key No. 101). Japan, Korea, China. (30) *lilivora* Takahashi
- Interocellars in position 2, interval 22-33 microns, or their position not specified 35
- Interocellars in position 2-3 or 3, interval 13-22 microns..... 39
- 35. Postoculars small, inconspicuous, 10-16 microns, interval 23 microns; antennal segment III, 43 microns; comb on eighth tergum present but weak. Color clear yellow, setae brown; antennal segments, 1

- and 2 light yellow, 2 slightly darker, 3 darkened at apical end, 4 in apical half, 5 at extreme tip, 6-8 grayish brown. — (Note: the species was compared with *cephalica* and *melanommata* in the original description but antennal segments 2 and 3 were not described. The specimens here identified as belonging to this species are from Argentina and conform to the original description. They belong in the *intonsa* group.) (1.0 mm.) Paraguay, Argentina.....
- (31) *distinguenda* Bagnall
- Postoculars longer and more conspicuous 36
36. Color clear yellow including legs, wings and setae, only antennal segments darkened 37
- Color yellow or shaded with orange, gray or brown, setae brown 38
37. Refer to key No. 26. (22) *williamsi* Hood
- Antennal segments, III, 48; VII, 13; VIII, 19 microns; interocellars 54; interval 22 microns; eighth tergum without comb. Color pale yellow including legs, fore wings and setae; antennae mostly pale yellow with segment 5 slightly shaded in apical third, 6 in apical half, 7 and 8 light brown. (1.2 mm.) Brazil.
- (32) *bondari* Hood
38. (*Europe*). Antennal segments, III, 50-53; VII, 9; VIII, 14 microns; seta formula: head, 56-60/15-20; prothorax, 33/66; 83/70; interval between interocellars 26 microns; eighth tergum without comb; lower vein of fore wing with 10-12 setae. Color; head and legs nearly clear yellow, thorax shaded with orange, abdomen brownish yellow. (1.0-1.3 mm.) (Refer to key No. 70 for *pallida* f. *melanura*). *Europe*.
- (33) *pallida* Uzel
- Color as in *pallida* but antennal segments 3-5 strongly colored grayish brown. (Original description very brief). (1.0-1.3 mm.) France (34) *ononidis* Bagnall
- (*Africa*). Separated from *pallida* by the shorter postoculars, more slender antennae with longer style, shorter setae on prothorax and a lesser number of setae on inner margin of hind tibiae. Position of interocellars uncertain. E. Africa. (35) *delicatula* Bagnall
- Agreeing with *pallida* in color and size but differing by its shorter and stouter antennae, longer postocular and antero-marginal and shorter apical abdominal setae. Position of interocellars uncertain. Tunis, Afr. (36) *priesneri* Bagnall
- (*South America*). Antennal segment III, 59-62 microns; setae on anterior angles of prothorax approximately 70 microns; Position of interocellars uncertain. Color yellow, thorax darker, setae brown; antennal segments 1-3 clear yellow, or 2 a deeper yellow, 3 shaded apically, 4 in apical half, 5 at extreme tip, 6-8 dark. (1.3-1.5 mm.) (Refer to key No. 32). Paraguay. (27) *gemina* Bagnall
- (*Japan*). Species small, pale yellow, thorax somewhat darker and prothorax shaded with orange, abdomen darkened apically; found on leaves of cotton. (Note: description in Japanese). Japan.
- (37) *gossypii* Shiraki
39. Antennal segment III, 43-46 microns, shorter in smaller specimens. 40
- III, 48-53 microns, longer in larger specimens. 41
40. Setae on posterior angles of prothorax 46-56 microns; comb on eighth tergum fully developed. Color uniform light grayish yellow including legs and fore wings; antennal segments, 1-5 mostly yellow, 2-5 washed with brown apically, 6 lighter at extreme base, otherwise like 7 and 8 grayish brown. (1.25 mm.) Brazil.
- (38) *rodeos* Moulton

- Setae on posterior angles of prothorax 60-73 microns; comb on eighth tergum fully developed; colored as in *rodeos* but with orange pigment in thorax and ocellar pigment orange; fore wings washed with brown; antennal segments, 1 clear, 2-5 darkened with grayish brown, lighter only at extreme bases, 6-8 dark gray-brown. (1.3 mm.) Brazil (39) *allochroos* Moulton
- Refer to key No. 25. (21) *sulphurea* Schmutz
- 41. Antennal segment III, 51 microns; interocellars 24-28, interval 16 microns. Color clear yellow or thorax shaded with gray, fore margins of terga with a grayish cross band; legs clear yellow, antennae whitish yellow, 3-5 shaded with gray, 5 distinctly darkened apically, 6-8 brownish gray. (This appears to be very close to if not a synonym of *sulphurea*). (1.2 mm.) So. Eur., N. Afr., India. (40) *dampfi* Priesner
- Smaller than the species, antennae and prominent setae shorter, segment III may be 35 microns, fewer setae on lower vein of fore wings, 10-12; antennal segments more strongly colored than in the species, 4 pale only at base and 5 in basal half in darkest specimens. Egypt, Ter. Haw. *dampfi* f. *nana* Priesner
- Darker colored variety with abdomen uniformly darkened; interocellar setae longer, 50 microns, equal to or longer than postoculars. Egypt, Uganda. *dampfi* f. *interocellaris* Karny
- Somewhat larger than *dampfi*; clear yellow with orange pigment in thorax; terga 1-8 each with a grayish brown band across anterior margin; fore wings clear; antennal segments, 2 more or less colored, 5 entirely dark or cleared only at extreme base; hind femora, sometimes middle femora also with a gray spot on outer margins. So. and W. Africa. (41) *favoniana* Priesner

Dark Colored, North American Species. *

- 42. Species placed here for reference only.
- Head and thorax reddish orange, head lighter and shaded with gray, abdomen gray at base shading to blackish brown in last four or five segments; legs yellow, fore femora slightly shaded with gray; fore wings light gray; antennal segments blackish brown with 1, basal three-fourths of 3, basal third of 4 and pedicel of 5 paler, yellowish. The species is distinctive with its bright orange thorax and abdomen tipped with brown. (1.1 mm.) Arizona. (42) *fuscicauda* Hood
- Color bright orange yellow, head paler, abdomen shading from yellow at base to dark blackish brown or black in apical segments. (1.4 mm.) Trinidad. (43) *nigricauda* Hood
- Species keyed 43
- 43. Interocellars, position 1, interval 33-40 microns. Postoculars minute; antennal segment III, 40-53 microns; comb on tergum 8 wanting. Color brown, lighter specimens yellowish brown, darker specimens blackish brown; head and thorax usually lighter than abdomen; legs lighter, mostly yellow with femora darkened at base or tibiae also darkened; fore wings light brown when present; macropterous or brachypterous. (0.93 mm.) (Figs. 20, 2, b, c). E. and So. U. S., Porto Rico, Ter. Haw. (44) *fusca* Hinds
- Interocellars, position 2, interval 22-26 microns. 44
- Interocellars, position 2-3 or 3, interval 16-20 microns. 59
- 44. Antennal segment III, normally 43-46 microns. 45
- Antennal segment III, 48 microns or longer. 47

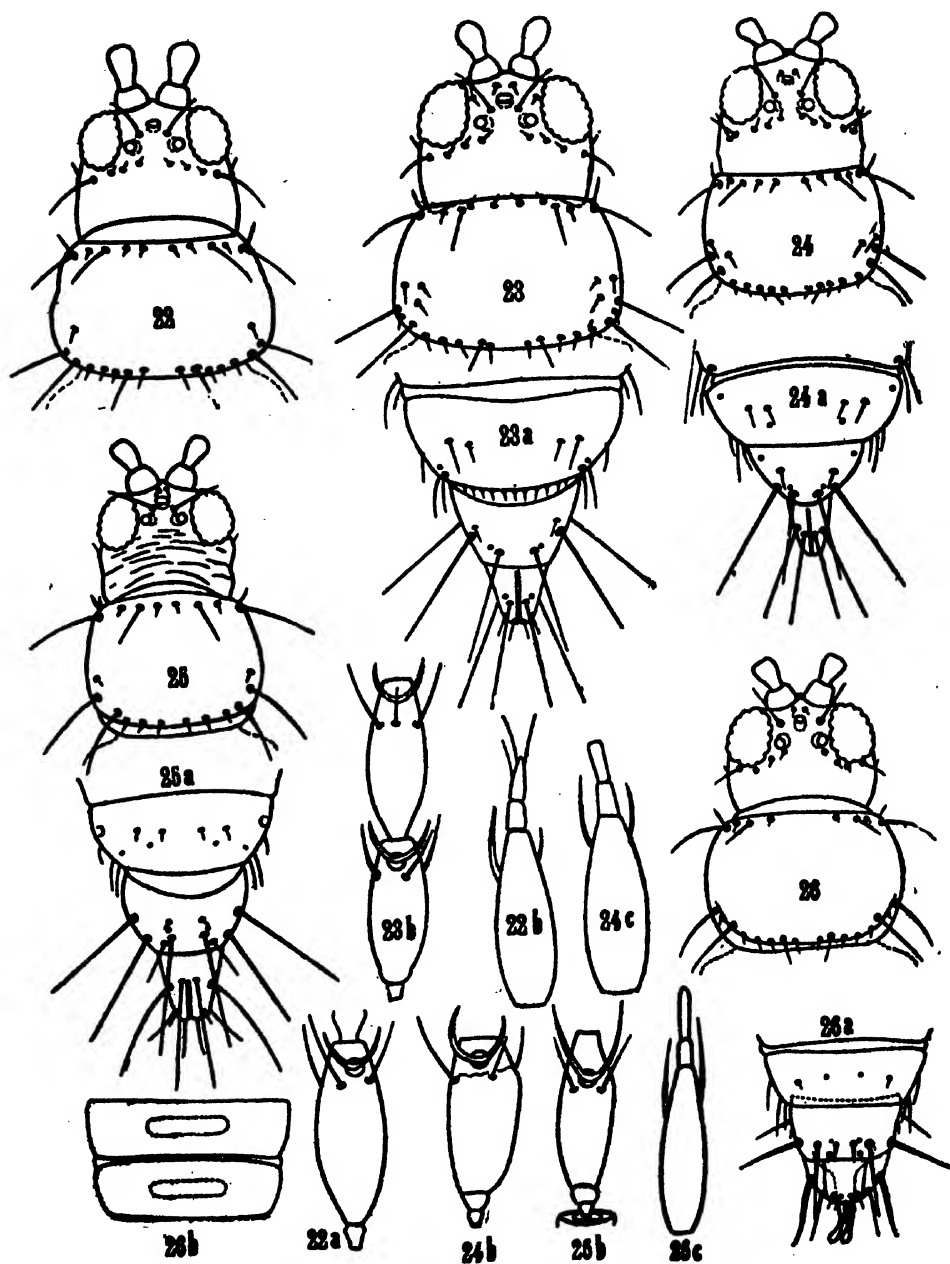


Fig. 22. *Fr. syringae*, new species; ♀, head and prothorax; a, third antennal segment; b, segments 6-8. — Fig. 23. *Fr. californica* Moulton; ♀, head and prothorax; a, end of abdomen; b, antennal segments 3-4. — Fig. 24. *Fr. nubila* Treherne; ♀, head and prothorax; a, end of abdomen; b, third antennal segment; c, segments 6-8. — Fig. 25. *Fr. pulchella* Hood; ♀, head and prothorax; a, end of abdomen; b, third antennal segment; c, segments 6-8. — Fig. 26. *Fr. insularis* Franklin; ♀, head and prothorax; a, ♂, end of abdomen; b, sternae 6-7.

45. (*Brachypterous*). Two minor setae on anterior margin of pronotum; antennal segment III, 46; VII, 10; VIII, 13 microns; interocellars, interval 23 microns; comb on tergum 8 incomplete. Color blackish brown, antennae uniformly dark brown, legs dark brown with tips of tibiae and all tarsi yellowish brown; wing pads brown. (0.95 mm.) Iowa..... (45) *andrei* Moulton
- (*Macropterous*). Four minor setae on anterior margin of pronotum; antennal segment III, 43; VII, 7; VIII, 14 microns; interocellars, interval 23 microns; comb on tergum 8 present but weak. Color: head yellowish brown, lighter in anterior half, prothorax dark brown, pterothorax yellowish orange brown; legs dark brown with fore tibiae, tips of middle and hind tibiae and all tarsi nearly clear yellow; fore wings clear yellow; antennal segments 2- and 6-8 dark brown, 2 darkest, 3-5 brownish yellow shading gradually to brown. Lower vein of fore wing with 12 setae. (1.1 mm.) Cal..... (46) *venusta* Moulton
- Antennal segment III, 46; VII, 7; VIII, 9 microns; lower vein of fore wing with 20 setae. Color almost uniformly dark brown, tip of abdomen darker; femora dark brown basally, yellow apically, tibiae and tarsi yellow; antennal segments 1, 2 and 6-8 brown, 3 yellow, shaded apically, 4 and 5 successively darker; fore wings brown, paler at base. (1.1 mm.) Panama.... (47) *bagnalliana* Hood
- Fore wings uniform brown to dark brown..... 46
46. Antennal segment III, 43-46; VII, 7; VIII, 12 microns; two minor setae on fore margin of pronotum; seta formula: head, 34-40/21-25; prothorax, 40/53; 59/56; lower vein of fore wing with 11-14 setae. Color brown with orange shading in head and thorax, two apical abdominal segments abruptly blackish brown; legs brownish yellow with femora shaded dark brown along outer surface, tibiae more lightly shaded; antennal segments 1, 2 and 6-8 brown, 2 darkest with orange pigment, 3 brownish yellow, shaded in apical half, 4 and 5 mostly brown, yellowish only at extreme bases; fore wings with a distinct pale spot at basal fourth. (1.1 mm.) Panama..... (48) *tridacana* Hood
- Antennal segments, III, 46; VII, 8; VIII, 20 microns; four minor setae on anterior margin of prothorax; seta formula: head, 50/30; prothorax, 56-76/83-88; 66-86/66-73; lower vein of fore wing with 16 setae. Color: head and thorax dark yellowish orange, abdomen deep brown; fore femora brown, fore tibiae and tarsi nearly clear yellow, other legs dark brown with tarsi only a shade lighter; fore wings without pale spot near base; antennal segments mostly deep brown, 1 not lighter than 2, 3 clear yellow in basal third, 4 yellow at extreme base. (1.39 mm.) (Figs. 21, a, b). Cal..... (49) *dahliae*, n. sp.
47. Fore wings clear to yellowish or only weakly washed with brown 48
- Fore wings brown to dark brown..... 52
48. Antennae entirely dark or only third segment lighter at base... 49
- Antennal segments 3, 4 and 5 also usually cleared at bases..... 51
49. Interocellars, interval, 23 microns; seta formula: head, 46/33; prothorax, 60/70; 90/73; antennal segments, III, 48; VII, 10; VIII, 16 microns; comb on tergum 8 present, thin. Color: head and thorax orange brown, abdomen brown; legs somewhat paler than body, fore tibiae and all tarsi yellowish brown; antennae dark brown with segments 2 and 6-8 nearly black; fore wings weakly washed with

- brownish yellow. (1.32 mm.) (Figs. 22, a, b). Mex..... (50) *dianthi*, n. sp. 50
- Interocellars, interval 33 microns 50
50. Antennal segments, III, 50; VII, 10; VIII, 18 microns; seta formula: head, 66/50; prothorax, 86/100; 93/106; comb on tergum 8 present, thin; lower vein of fore wing with 13 setae. Color: head and thorax yellowish brown, pterothorax shaded with orange, abdomen brown, darker apically; femora brown, tibiae and tarsi brownish yellow, tibiae shaded darker along outer margins; antennae mostly brown, segment 2 darkest, 3 lighter than the others, cleared to yellow at extreme base. (1.4 mm.) Cal.... (51) *conspicua* Moulton
- Antennal segments, III, 66; VII, 10; VIII, 13 microns; seta formula: head, 7/43; prothorax, 60/66; 73/70; comb on tergum 8 present, weak; lower vein of fore wing with 13 setae. Color: head and thorax orange brown, abdomen brown; legs brown with inner portion of fore tibiae and all tarsi yellowish brown; ocellar pigment orange; wings nearly clear; antennae deep brown with only pedicel of third segment lighter, 2 and 6 blackish brown. (1.5 mm.) (Fig. 23). Mex. (52) *syringae*, n. sp.
51. Antennal segments, III, 53-60; VII, 10; VIII, 15 microns; seta formula: head, 45-53/36-46; prothorax, 56-70/63-80; 83-90/73-83; interocellars, interval 30 microns; comb on tergum 8 present, sparse, the microsetae arising from broadened bases; lower vein of fore wing with 18 setae. Color dark brown, head lighter, yellowish brown, pterothorax shaded with orange, abdomen brown, apical segments darkest, terga 2-8 each with a darker line along anterior margin; legs brownish yellow with tibiae and tarsi lighter; fore wings brownish yellow but not brown; ocellar pigment orange; antennal segments 1, 2 and 6-8 dark brown, 1 lighter, 2 darkest, 3-5 mostly brown with 3 shading to clear yellow in basal third, 4 and 5 yellowish at bases. (1.3-1.5 mm.) (Figs. 24, a, b). West. U. S., Can. Mex., Colombia, S. A..... (53) *californica* Moulton
- Color pale grayish yellow including legs and fore wings; antennal segments 1 gray, 2-4 grayish yellow basally shading to light yellowish brown apically, 5 gray, darkened apically, 6-8 light brown. Apparently an immature form of *californica*. (Fig. 18). (Refer to key No. 31)..... *californica* f. *trehernei* Morgan, n. comb.
- Darker colored than *occidentalis* and a transitional form to *californica*; antennal segments, 2 strongly colored, 3 distinctly colored at least in apical half, 4 in apical two-thirds and 5 cleared only at base; abdomen with brown blotches on terga. Mexico. — (Note: Dr. Priesner has used the name *Fr. occidentalis* f. *brunnescens* for specimens found in Mexico, a form which appears to be the same as *californica*. The writer has numerous specimens of *californica* from Mexico which could be identified as Priesner's f. *brunnescens* but types of this form are not available. The writer believes that the form *brunnescens* is the same as *californica*)..... *californica* f. *dubia* Priesner, n. comb.
- Antennal segments, III, 65-73; VII, 10; VIII, 18 microns. (Refer to key No. 33 for light colored forms). Color light brown including legs, with tibiae and tarsi only a shade clearer; fore wings almost clear; antennae brown, segments 2 and 6-8 darkest, 3-5 lighter with 3 yellow in basal half and 4 and 5 at extreme bases. (1.32 mm.) Cal., Utah (29) *yuccae* Moulton
52. Antennae with all segments dark brown..... 53
- Antennal segments 3-5 partly cleared to yellow..... 54

53. Antennal segments, III, 53; VII, 8; VIII, 18 microns. Seta formula: head, 46/16; prothorax, 20/16; 63/63 microns; tergum 8 with comb. Color uniformly deep brown including antennae, legs and fore wings. (1.1 mm.) Mexico..... (54) *tolucensis* Watson
- Antennal segments, III, 50; VII, 10; VIII, 14 microns. Seta formula: head, 30/26; prothorax, 73/70; 70/- microns. Tergum 8 with comb. Color blackish brown including antennae, legs and fore wings. (1.06 mm.) Cal., Utah (55) *obscura* Moulton
54. Only antennal segment 3 clearly yellowish..... 55
- Segments 4 and 5 also cleared to yellowish at bases..... 56
55. Antennal segments, III, 60; VII, 10; VIII, 13 microns; seta formula: head, 50/44; prothorax, 60/73; 78/83 microns; interocellars, interval 33 microns. Color dark brown, thorax deep chestnut brown, all femora, middle and hind tibiae concolorous with body, fore tibiae, tips of middle and hind tibiae brownish yellow; fore wings light brown, cleared in basal fourth; antennal segments 1, 2 and 4-8 dark brown with 2 darkest, 3 clear yellow in basal third, shading to brownish yellow apically, 4 lighter at base. Species very close if not identical with *californica*. (1.3 mm.) (Figs. 25, a, b, c). Canada (56) *nubila* Treherne
56. Postocular setae 22-44 microns 57
- Postoculars minute, barely visible 58
57. Antennal segments, III, 53-60; VII, 9; VIII, 16 microns; seta formula: head, 50-60/33-43; prothorax, 73/80; 76-86/83-96 microns. Interocellars, interval 20-23 microns. Color, head light golden yellow, thorax orange yellow, abdomen brown; legs mostly yellow in light colored specimens with femora darkened along margins; fore wings brown, a shade lighter at bases; antennal segments 1, 2 and 6-8 brown, 2 and 6 darkest, 3-5 mostly yellow, 3 with shading in outer third, 4 and 5 darkened beyond the yellowish bases. (Refer to key No. 86). U. S., Mex..... (57) *stylosa* Hood
- Color of head and thorax dark orange brown, abdomen blackish brown; legs mostly yellow with all femora blackish in basal two-thirds; wings only lightly washed with brownish yellow and not brown as in the species; antennae blackish brown with bases of segments 3-5 yellowish. Male uniformly light brownish yellow including legs and wings except all femora which are darkened with black on the margins; antennal segments 1-3 mostly light with 2 and 3 shading to light brown, 4-8 blackish brown with 4 lighter in basal third. Type material and locality: Holotype and 7 paratype ♀♀, allotype and 3 paratype ♂♂, taken on a legume, Nov., 1944, at Bogota, Colombia by E. J. Hambleton. This form differs from the species especially in the darker antennae and the light colored wings *stylosa* v. *colombiensis*, n. v.
- Antennal segments, III, 60; VII, 10; VIII, 15 microns; seta formula: head, 66/43; prothorax, 90/93; 100/93 microns; interocellars, interval 26-30 microns; two minor setae on anterior margin of prothorax. Color, head, thorax and legs yellowish brown, abdomen brown; fore wings brown; antennal segments 2 and 6-8 dark brown, 1 and 3-5 lighter with 4 and 5 darkened in outer portions. (1.5 mm.) No. Dakota (58) *grandis* Moulton
- Antennal segments, III, 60-72; VII, 10; VIII, 13-16 microns; seta formula: head, 60/40; prothorax, 78/83; 90/83 microns; interocellars, interval 26 microns; four minor setae on anterior margin of prothorax. Color almost as in *stylosa* shading from yellowish brown in head to blackish brown at tip of abdomen; pterothorax with

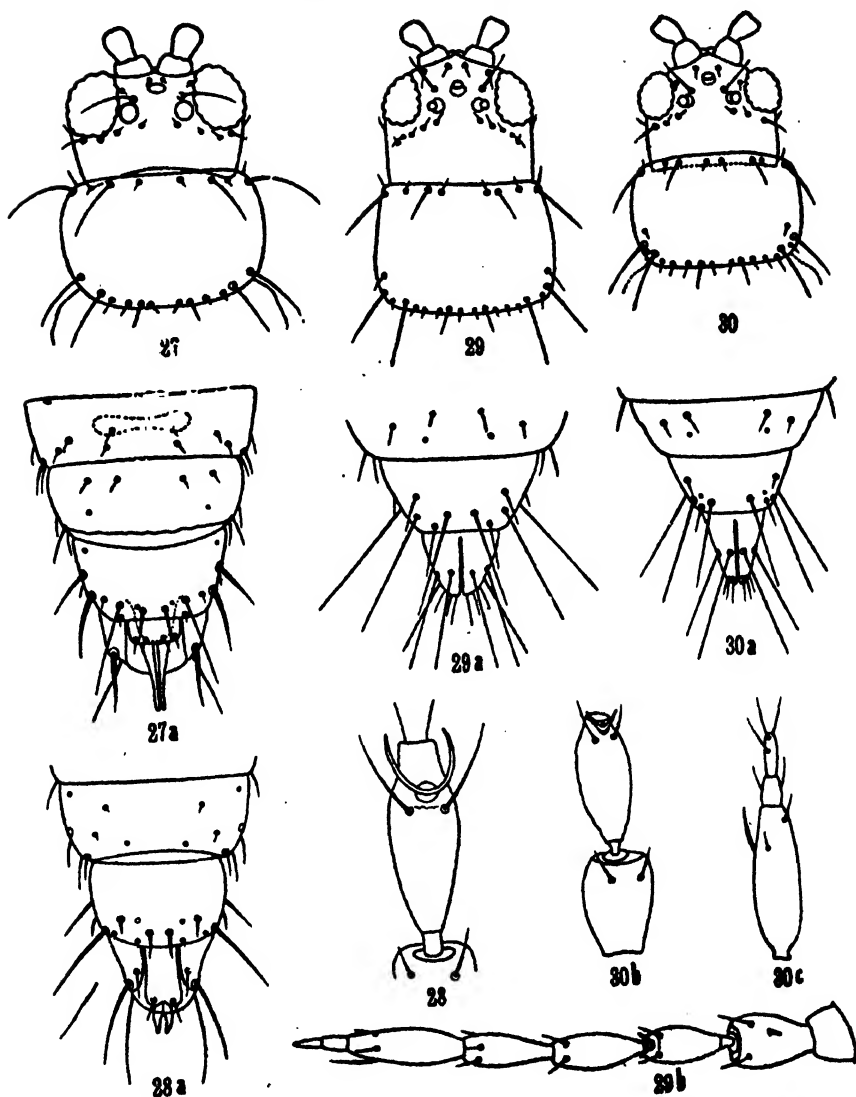


Fig. 27. *Fr. fortissima* Priesner; ♀, head and prothorax; a, ♂, end of abdomen. — Fig. 28. *Fr. fulvipes* Bagnall; ♀, third antennal segment; a, ♂, end of abdomen. — Fig. 29. *Fr. unicolor* Morgan; ♀, head and prothorax; a, end of abdomen; b, right antenna. — Fig. 30. *Fr. alba*, new species; ♀, head and prothorax; a, end of abdomen; b, antennal segments 2-3; c, segments 6-8.

- orange-red pigment; legs paler than body, tibiae and tarsi yellow, tibiae more or less shaded with brown; fore wings uniformly brown. (1.4 mm.) Panama (59) *pamamensis* Hood
58. Antennal segments, III, 73; VII, 14; VIII, 23 microns; seta formula: head, 70/minute; prothorax, 73/100; 100/100 microns; interocellars, interval 23 microns. Color dark brown with bright vermilion red

- pigment in thorax; legs pale grayish yellow with anterior and middle femora shaded gray on outer surfaces, hind femora brown; wings brown; antennal segments 1, 2 dark brown, 2 paler apically, 3 grayish yellow, paler basally, 4-8 darker than 3 but lighter than 1 and 2. (1.4 mm.) (Figs. 26, a, b, c). Panama..... (60) *pulchella* Hood
59. Antennal segment III, 43 microns 60
— Antennal segment III, 48-56 microns 61
60. Antennal segments, III, 43; VII, 16; VIII, 23 microns; seta formula: head, 33/12; prothorax, 60/66; 76/93 microns; interocellars, interval 20 microns; comb on tergum 8 sparse, weak or incomplete. Color brown including all segments of antennae with only pedicel of 3 cleared, legs brownish yellow, tarsi yellow; wings clear. (1.3 mm.) Fla. (61) *pontederiae* Watson and Preer
- Antennal segments, III, 43; VII, 8; VIII, 13 microns; seta formula: head, 26/23; prothorax, 26/30; 50/53 microns; interocellars, interval 16 microns; tergum 8 without comb. Color blackish brown including legs except fore tibiae and all tarsi which are yellow; fore wings brown; antennal segments, 1, 2 and 6-8 brown, 3-5 clear yellow. (1.16 mm.) Mexico (62) *deserti-leonidum* Watson
61. Antennal segments, III, 46-48; VII, 8; VIII, 11 microns; seta formula: head, 28-31/22-25; prothorax, 39-42/56-59; 64/56 microns; tergum 8 with comb. Color chestnut brown, thorax with orange pigment; fore legs yellow, femora darkened especially along outer margins, more or less cleared to yellow at ends; middle and hind tibiae always yellow at extreme bases, whitish yellow apically; tarsi clear yellow; fore wings colored, lighter at base; antennae reasonably dark, segment 3 yellow, shaded with gray, 4 yellow at base or in basal third, 5 yellow only in pedicel. (1.45 mm.) Mexico..... (63) *inuttilis* Priesner
- Antennal segment III, 53 microns; colored like the species but with antennae mostly dark brown, only segment 3 yellowish in basal third; legs dark brown with fore tibiae and all tarsi lighter; fore wings uniformly brown, not cleared at bases. Mexico..... *inuttilis* f. *adadusta*, n. f.
- Antennal segment 4 yellow as in 3, weakly shaded gray apically, 5 somewhat darkened in apical third or half, 6 cleared at base; setae dark; head with only a dark line along posterior margin. Mexico *inuttilis* f. *dubiella* Priesner
- Antennal segments, III, 46-56; VII, 8; VIII, 10 microns; seta formula: head, 33-43/26; prothorax, 40-46/53-66; 60-80/60-80 microns; interocellars, interval 16-20 microns; tergum 8 without comb. Color blackish brown including antennae and legs, with only segment 3, fore tibiae and tarsi a shade lighter; fore wings uniformly brown. (1.24-1.37 mm.) Mexico..... (64) *simplex* Priesner
- Antennal segments shorter and more rounded than in the species; in the male, the sense areas on sterna 3-7 are smaller, width, 10, 15, 17, 13, and 12 microns as compared with 29, 29, 34, 34 and 29 microns respectively in the species.... *simplex* f. *celeata* Priesner

Dark Colored Species From Outside North America.

62. (Species placed here for reference only). Color yellowish brown, antennal segments 1 and 2 clear, 3-5 darkened but cleared at bases, head not narrowed posteriorly. Australia..... (65) *aeschyli* Girault
- Antennal segment III normally 35-40 microns..... 63

- III, normally 43-58 microns 64
- III, normally 60-67 microns 73
- III, normally 70 microns or longer 76
- 63. Head broad, 2.0 times as long as wide; antennal segments III, 35; VII, 7; VIII, 7 microns. Head and thorax light yellowish brown, abdomen dark brown, legs pale yellow; antennal segments 1, 2 and 6-8 dark, 3-5 pale grayish yellow; wings clear. (1.0-1.1 mm.) Indo-China (66) *vicina* Karny
- Head approximately as long as wide; antennal segments, III, 35; VII, 10; VIII, 15 microns. Color dark brown including antennae, only segment 3 paler; wings weakly shaded with brown. (1.2-1.4 mm.) Siam (67) *persetosus* Karny
- 64. Interocellars, position 2, interval 23-33 microns 65
- Interocellars, position 2-3 or 3, interval 10-17 microns 72
- 65. Brachypterous, wings rarely developed 66
- Macropterous 67
- 66. Antennal segments, III, 43; VII, 10; VIII, 16 microns; seta formula: head, 34/13; prothorax, 40/63; 66/56; tergum 8 with broad teeth or serrations along posterior margin. Color, head and thorax yellow, abdomen dark brown; antennal segments, 1 light grayish brown, 2 and 6-8 gray-brown, 3-5 yellowish gray, each lighter at extreme base. Males yellow, including legs; antennal segments 1-4 clear with 4 slightly clouded apically, 5 colored in outer half. (0.88-0.1 mm.) Europe (68) *nigriventris* Uzel
- Antennal segments, III, 43; VII, 9; VIII, 14 microns; interocellar setae longer than in *nigriventris*, antero-marginals 60 as compared with 40 microns in *nigriventris*, setae on posterior angles shorter. Color dark brown, abdomen black; only pedicel of third antennal segment cleared; wing pads brown. (1.0 mm.) Austria (69) *tristis* Priesner
- 67. Antennal segments 7 and 8 subequal or 8 only slightly longer 68
- Antennal segment 8 clearly longer than 7 69
- 68. Antennal segments, III, 49-52; VII, 10; VIII, 12 microns; seta formula: head, 56/26; prothorax, 56/76; 90/83; comb on tergum 8 sparse, the microsetae with broad bases; hind tibia with a series of six strong, brown setae on inner margin. Color brown, thorax cinnamon brown, legs mostly yellow with femora, middle and hind tibiae darkened especially in the middle; fore wings clear; antennal segments, 1 and 2 darkest, 3-5 yellow, 5 shaded to light brown, 6-8 brown. Males yellow, thorax orange yellow, abdomen weakly colored gray; antennal segments 1-5 yellow, 5 shaded with brown, 6-8 brown. (1.3 mm.) (Figs. 1, a, b, c.) Europe (70) *intonsa* Trybom
- Head and thorax yellow to orange yellow, pterothorax light brownish yellow, abdomen whitish yellow to clear brownish yellow, shaded apically with segments 9 and 10 blackish gray. Legs clearer than in the species; intermediate antennal segments entirely clear, segment 1 often clear gray *intonsa* f. *adusta* Uzel
- Antennal segments 1 and 2 grayish brown, other segments white; head and abdomen dark grayish brown, blackish apically, thorax reddish brown; legs as in the species *intonsa* f. *albicornis* Uzel
- Antennae entirely yellowish-gray-brown, segment 3 somewhat lighter; body color as in the species *intonsa* f. *fulvicornis* Uzel
- Body somewhat smaller, antennal segments shorter and more compact. Color darker than normal females of *Intonsa*; antennal segment 5 clearer at base but at most not clear yellow; wings

- grayish. Males much darker than in the species, usually not lighter than females; antennal segments 1-4 yellowish gray to clear gray, 5 almost entirely gray..... *intonsa* var. *maritima* Priesner
- The extreme clearest of the species, yellowish, thorax somewhat darker; antennae yellowish, segment 2 entirely so, 3-5 colored apically, 6-8 dark gray; legs clear yellow; fore wings grayish yellow.
intonsa f. *nigropilosa* Uzel
- Antennal segments, III, 51; VII, 10; VIII, 10 microns; postoculars minute; seta formula: head, 45-50/15; prothorax, 50-53/63-70; 66-70/73-80; comb on tergum 8 rudimentary to incomplete in the middle. Color, head and prothorax deep yellow, lighter than pterothorax which is orange-yellow, abdomen brown; legs and fore wings clear yellow; antennal segments, 1, 2 and 6-8 brown, 2 darker than 1, 3-5 yellow, 5 shaded in apical half. (1.1-1.4 mm.) Japan, China....
(71) *formosae* Moulton
- Head and thorax clear yellow, pterothorax with orange shading, abdomen dark. Kyoto, Japan..... *formosae* v. *tricolor* Moulton
69. Lower vein of fore wing with 7-13 setae..... 70
- Lower vein of fore wing with 13-17 setae..... 71
70. Antennal segments, III, 50; VII, 9; VIII, 14 microns; interocellars much longer than postoculars, seta formula: head, 50/16; prothorax, 33/66; 83/70; comb on tergum 8 wanting; lower vein of fore wing with 11-13 setae. Color, head yellow, thorax brownish yellow, abdomen brown; legs with middle and hind femora shaded brown, all tibiae and tarsi nearly clear yellow; antennal segments 3-5 mostly yellow. (1.25 mm.) (Refer to key No. 38 for typical form). Europe (39) *pallida* f. *melanura* Priesner
- Antennal segments, III, 55; VII, 10; VIII, 17 microns; postoculars well developed, only noticeably shorter than interocellars. Color, head and prothorax grayish yellow, pterothorax dark orange yellow, abdomen brownish, darker apically; antennal segments 3-5 mostly yellow with 5 darker in apical third. (1.5 mm.) Java.....
(72) *tabacicola* Karny
71. Antennal segments, III, 54; VII, 10; VIII, 12 microns; interocellars very long, postoculars half as long; setae on prothorax long; tergum 8 with comb. Color brown, fore femora yellow, shaded lightly on outer margin, middle and hind femora light brown, tibiae and tarsi yellow; fore wings brown; antennae mostly yellow with segments 1, 2 brown, 3-5 yellow, 5 weakly darkened apically, 6-8 light brown. (1.0-1.1 mm.) Paraguay, S. A..... (73) *fiebrigi* Priesner
- Antennal segments III, 53; VII, 11; VIII, 18 microns; seta formula: head, 47/18; prothorax, 70/68; 85/83 microns; tergum 8 with comb. Color dark brown; head yellowish brown, darkened at sides; thorax brown; legs pale yellow, all femora lightly shaded; fore wings brown, just noticeably paler at base; antennal segments, 1 brown, 2 blackish brown, 3 and 4 brownish yellow, 5-8 brown; ocellar pigment bright red. (1.2 mm.) Peru..... (74) *peruviana* Hood
- Antennal segments, III, 56; VII, 11; VIII, 20 microns; seta formula: head, 40/34; prothorax, 60/63; 72/64 microns; tergum 8 with sparse comb. Color, head, thorax, all femora, middle and hind tibiae, abdominal segments 9 and 10 dark brown, remainder of body light brown; fore tibiae grayish brown through center, shaded at sides, tarsi gray; fore wings grayish brown, cleared at base; antennae deep brown with only segment 3 lighter. Males darker than females, sterna with sole-shaped sensory areas. (1.3 mm.) Argentina.....
(75) *australis* Morgan

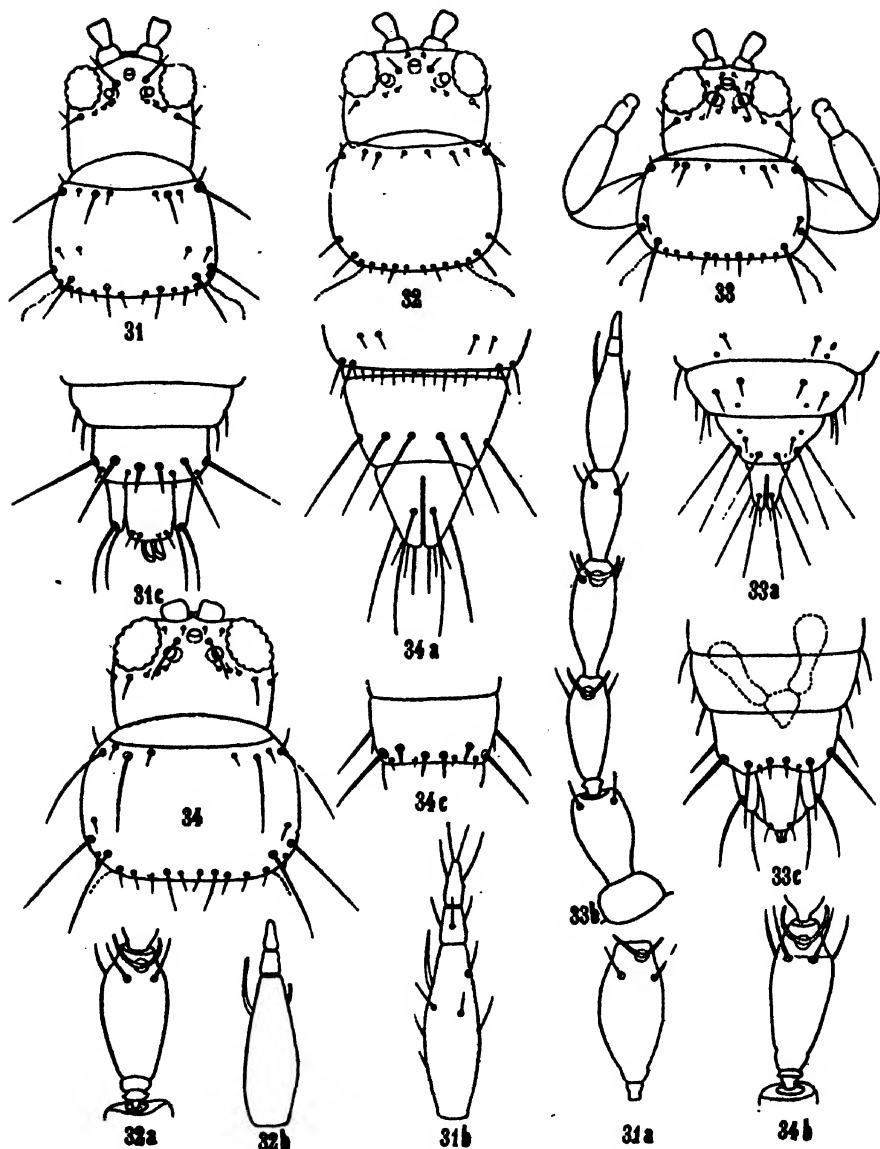


Fig. 31. *Fr. tenuicornis* Uzel; ♀, head and prothorax; a, third antennal segment; b, segments 6-8; c, ♂, end of abdomen. — Fig. 32. *Fr. breviseta*, new species; head and prothorax; a, third antennal segment; b, segments 6-8. — Fig. 33. *Fr. tritici* Fitch; ♀, head and prothorax; a, end of abdomen; b, right antenna; c, ♂, end of abdomen. — Fig. 34. *Fr. difficilis* Hood; ♀, head and prothorax; a, end of abdomen; b, third antennal segment; c, ♂, tergum 9.

72. Antennal segments, III, 46-50; VII, 10; VIII, 15 microns; seta formula: head, .30-40/23-34; prothorax, 43-50/46-65; 56-73/53-72 microns; interocellars, interval 10-15 microns; tergum 8 without comb. Color, head yellowish, prothorax dark to orange yellow, pterothorax orange brown, abdomen brown; legs concolorous with body but with fore tibiae and all tarsi yellowish brown; antennae

- mostly brown, segment 2 darkest, 3 and 4 lighter, each clear to brownish yellow at base, brown apically; fore wings washed with brownish yellow. Males colored as in females but thorax and antennae may be lighter. (1.2 mm.) (Fig. 10). Afr., So. Amer., Australia, New Guinea, Phil. IIs. (76) *schultzei* Trybom
- Color blackish brown including legs with only fore tibiae and all tarsi lighter; antennae deep brown, segments 1 and 2 blackish brown. 3-5 somewhat lighter especially at bases; fore wings weakly washed with brownish yellow. Separated from the species by its blackish color. West Australia. *schultzei* v. *nigra*, n. var
- Seta formula: head, 40/34; prothorax, 49/65; 71/65 microns; interocellars, interval 12-13 microns. Color dark brown, fore tibiae and tarsi lighter; antennal segments, 1 grayish brown; 2 darkest, 3 and 4 light grayish brown, 5-8 gray-brown. This species is very close to *schultzei* and may be a synonym. (1.1 mm.) England. (77) *anglicana* Bagnall
- Antennal segments, III, 55; VII, 9; VIII, 14 microns; seta formula: head, 30/34; prothorax, 42/63; 82/76 microns; interocellars, interval 17 microns; tergum 8 with comb; lower vein of fore wing with 18-20 setae. Color dark brown, more or less blackish especially in the abdomen; legs concolorous with body but with fore tibiae and all tarsi yellow, shaded with brown; fore wings uniform light brown, not paler basally; antennal segments, 1, 2 and 5-8 dark brown, 2 darker than 1, 3 brownish yellow heavily shaded at sides and apically, 4 darker than 3. (1.5 mm.) Peru, S. A. (78) *compositarum* Hood
73. Third sternum in the female with a clear, oval tympanum on either side near anterior margin. Antennal segments, III, 66; VII, 12; VIII, 21 microns; seta formula: head, 60/45; prothorax, 66/93; 93/86 microns; interocellars, position 2, interval 23 microns. Color dark brown, pterothorax weakly shaded with orange, legs dark except fore tibiae and all tarsi which are yellowish brown; fore wings deep brown, lighter at bases; antennae mostly brown with segment 3 yellow in basal half, darkened apically. Males colored as in females but with antennae and legs lighter. (1.66 mm.) (Fig. 7). Chile, So. Amer. (79) *cestrum* Moulton
- Third sternum without tympanum 74
74. Fore wings uniformly clear to yellowish. Refer to key No. 51. (53) *californica* Moulton
- Fore wings uniformly brown, not cleared at base. Antennal segments, III, 63; VII, 10; VIII, 18 microns; seta formula: head, 54/36; prothorax, 83/83; 90/90 microns; interocellars, position 2, interval 23 microns; tergum 9 with irregular comb. Color brown, pterothorax light orange-brown; antennae brown, segment 2 darkest, 3 cleared to yellow in basal half, 4 lighter at extreme base; legs yellowish brown with all femora darkened, middle and hind tibiae darkened in the middle, fore tibiae and all tarsi clear yellow. (1.3 mm.) Brazil, S. A. (80) *fulvipennis* Moulton
- Fore wings brown, cleared in basal fourth or fifth. 75
75. Antennal segments, III, 60; VII, 13; VIII, 20 microns; seta formula: head, 43/33; prothorax, 46/70; 83/80 microns; interocellars in position 2, interval 23 microns; tergum 8 with comb. Color, head and thorax yellowish brown, abdomen brown with darker bands across anterior margins of terga; legs brown with fore tibiae and tarsi lighter; wings light brown, cleared in basal fourth; antennae

- brown with only segment 3 brownish yellow. (1.3 mm.) Argentina
(81) *argentinae* Moulton
- Antennal segments, III, 61; VII, 8; VIII, 15 microns; seta formula: head, 67/38; prothorax, 88/88; 91/98 microns; interocellars in position 2, interval 25 microns. Color dark brown, abdomen often blackish brown; fore femora yellow at apex; fore tibiae, bases middle and hind tibiae, all tarsi yellow; antennal segment 3 bright yellow, darkened in apical third, 4 yellow in basal half, otherwise brown, 5 blackish brown, yellow at base. (1.4 mm.) Peru, S. A.
- (82) *xanthaner* Hood
76. Antennal segments, III, 76; IV, 100; VII, 13; VIII, 22 microns. Seta formula: head, 57/16; prothorax, 68/85; 103/100 microns. Color dark brown, thorax with bright vermilion pigment; coxae and hind femora brown otherwise legs pale yellowish white, with intermediate femora shaded dark brown in the middle; fore wings light brown, paler between longitudinal veins and in basal third; antennal segments, 1 and 2 dark brown, 2 yellowish apically, 3 dark yellow, 4-8 grayish brown, 4 more yellowish than others, and, like 5, paler just beyond pedicel. Wing setae nearly black. (1.5 mm.) Peru, S. A.
- (83) *antennata* Hood
- Antennal segment IV much shorter 77
77. Antennal segments, III, 70-73; IV, 56; VII, 10; VIII, 13 microns. Seta formula: head, 66/43; prothorax, 96/103; 103/103 microns. Body color light brownish yellow to brown with end of abdomen darker; pterothorax shaded with light orange; legs nearly yellow with femora weakly shaded in the middle; fore wings light brown, cleared in basal fourth; antennae dark with segment 3, basal half of 4 and extreme base of 5 clear yellow. In darker specimens, the color is dark brown with pterothorax yellowish orange and legs mostly yellow but with middle and hind femora mostly dark brown. (1.7 mm.) Brazil, S. A. (84) *longispinosa* Moulton
- Body color uniformly dark brown 78
78. Antennal segments, III, 73; VII, 13; VIII, 20 microns. Postoculars greatly reduced; seta formula: head, 53/20; prothorax, 83/86; -/-. Interocellars in position 2, interval 20 microns. Color blackish brown, legs lighter than body, mostly yellow with femora shaded in the middle; fore wings dark brown, not cleared in basal portion; antennal segments, 1 and 2 blackish brown, the others brown with 3 somewhat lighter; clear area at base of sensecone on segment 6 long and narrow. (1.44 mm.) Brazil, S. A. (85) *speciosa* Moulton
- Postoculars much longer, 40-60 microns 79
79. Interocellar setae in position 2, anterior to a line connecting anterior margins of posterior ocelli, but placed closely together, interval 20 microns. Antennal segments, III, 73; VII, 10; VIII, 16 microns. Seta formula: head, 76/63; prothorax, 86-106/90-106; 106-116/93-106 microns. Color dark brown including antennae, legs and fore wings with antennal segment 3 lighter at base; fore tibiae lighter, tarsi yellowish and fore wings cleared at bases. Males dark colored like the females, with legs and abdomen somewhat lighter. (1.54 mm.) Equador, S. A. (86) *tuberosi* Moulton
- Interocellars in position 2-3, on a line connecting anterior margins of posterior ocelli 80
80. Interval between interocellars, 23-26 microns 81
- Interval between interocellars, 38 microns 82
81. Antennal segments, III, 66-76; VII, 13; VIII, 20 microns; seta formula: head, 60/40; prothorax, 93/100; 113/113 microns. Color

- dark chestnut brown including legs but with fore tibiae lighter and tarsi yellow; fore wings brown, lighter at bases; antennal segments 3-5 and base of 6 pale lemon yellow, otherwise dark. (1.5 mm.) Argentina, Brazil..... (87) *setipes* Bagnall
- Antennal segments, III, 81; VII, 13; VIII, 21 microns. Seta formula: head, 77/53; prothorax, 116/126; 135/135 microns. Interocellars, interval 26 microns. Color blackish brown, including legs, fore wings nearly black, colorless at base but with extreme base dark; antennal segment 3 grayish brown in basal half, 4 in basal fifth, these shading to gray-brown distally, 5-8 blackish brown. (1.8 mm.) Peru, S. A..... (88) *phaeaner* Hood
82. Antennal segments, III, 80; VII, 12; VIII, 20 microns. Seta formula: head, 85/53; prothorax, 120/117; 129/140 microns. Color dark brown, end of abdomen blackish brown; fore femora yellow at apex, middle and hind femora yellow at bases, fore tibiae and all tarsi bright lemon yellow, middle and hind tibiae paler, even yellow at base; antennal segments, 3 bright yellow, 4 yellow in basal fourth otherwise yellowish brown, 5 dark grayish brown, abruptly yellow in basal sixth. (1.8 mm.) Peru, S. A..... (89) *cognata* Hood

Intonsa Group, Insularis Series.

Species From North and Central America.

83. North American species, including Panama, West Indies and Trinidad 84
- Species from outside North America 90
84. Interocellar setae, position 1 or 1-2, interval 36-50 microns..... 85
- Interocellars, position 2, interval 20-27 microns..... 86
85. Antennal segments, III, 60-66; VII, 13; VIII, 16 microns. Seta formula: head, 60/23; prothorax, 53/73; 83/76 microns; interocellars, interval 40-50 microns. General color of mature specimens dark brown; legs with all femora, middle and hind tibiae dark, fore tibiae and all tarsi clear yellow; fore wings light brown, cleared in basal fourth; antennal segments, 1, 2 and 6-8 dark brown, 3-5 mostly clear yellow. (1.43 mm.) (Figs. 3, 27, a, b, c). No. and So. Amer., West Indies (90) *insularis* Franklin
- Antennal segments, III, 60-76; VII, 15; VIII, 18 microns. Seta formula: head, 73/50; prothorax, 73/83; 112/85 microns; interocellars in position 1 or 2, interval 36-40 microns. Color black, immature specimens grayish brown; legs with all femora, middle and hind tibiae brownish black, fore tibiae yellow, weakly clouded along margins; fore wings deep grayish brown, cleared at bases; antennal segments, 1, 2 and 6-8 black, 3 yellow, more or less strongly clouded. 4 and 5 yellow only at bases. (1.3-1.5 mm.) Mex. (91) *fortissima* Priesner
86. Antennal segment III, 53-60 microns 86
- Antennal segment III normally 72-75 microns..... 87
- Antennal segment III normally 88-93 microns..... 88
87. Interocellars, interval 20-23 microns. (Refer to key No. 57)..... (58) *stylosa* Hood
- Interocellars, interval 25-27 microns. Antennal segments, III, 59; VII, 10; VIII, 20 microns. Seta formula: head, 36-51/25-37; prothorax, 60/74; 86/80 microns. General color dark, fore femora light brown, yellow apically, middle and hind femora dark brown, all tibiae and tarsi clear pale yellow; fore wings brown, paler in basal fourth;

- antennal segments, 1 and 2 brown with 2 paler apically, 3-5 clear yellow, 6 yellow in basal third, apical two-thirds with 7 and 8 brown. (1.3 mm.) Panama..... (92) *sulfuripes* Hood
88. Antennal segments, III, 72; VII, 12-1; VIII, 16 microns. Seta formula: head, 60-65/48-60; prothorax, 80/92-120; 104-120/96-112 microns. Color brownish black including 11 femora, fore tibiae clear yellow with margins more or less strongly shaded, fore tarsi yellowish, others darker; fore wings strongly colored, clear in basal fourth or fifth; antennae dark, only segment 3 clear yellow or shaded apically. Male: colored as in the female; sense areas on sterna varying in size and form, 72-76 microns broad. (1.69-1.94 mm.) Mex. (93) *fallaciosa* Priesner
- Color and shape as in the species but in the male, with the sense area on sternum 3 at most 36-44 microns broad. Mex..... *fallaciosa* 1. *parvifossis* Priesner
- Antennal segments, III, 75; VII, 11; VIII 15 microns. Seta formula: head, 73/50; prothorax, long/long. Color dark brown, paler anteriorly; most of fore femora, all tibiae and tarsi pale lemon yellow; fore wings clear in basal third, brownish gray beyond and paler again at apex; antennal segments 3, basal half of 4 and 5 pale yellow. (1.6 mm.) Cuba..... (94) *citripes* Hood
89. Antennal segments, III, 88; IV, 80; VII, 14; VIII, 17 microns. Color blackish brown with apex of fore femora, bases of middle and hind femora and tibiae, fore tibiae and all tarsi clear pale yellow; fore wings blackish brown, cleared in basal third; intermediate antennal segments yellowish. (1.7 mm.) Panama..... (95) *annulipes* Hood
- Antennal segments, III, 90-93; VII, 11; VIII, 15-17 microns. Seta formula: head, 93/70; prothorax, 140/140; 140/140 microns. Color dark chestnut brown, posterior margin of head black; femora colored like the body, fore tibiae clear yellow, middle and hind tibiae clear yellow at extreme base, tarsi clear yellow; fore wings strongly colored but cleared at bases; antennal segments, 1, 2 and 6-8 dark, 3 clear yellow, 4 yellow in basal half, 5 grayish yellow at extreme base otherwise strongly colored. (2.12 mm.) Mex..... (96) *ingentissima* Priesner

Species From Outside North America.

90. Position of interocellar setae not specified. Color yellowish brown, pterothorax bright orange-brown, abdomen darker; legs brownish yellow; fore wings uniform light gray-brown; antennal segments, 1, light, 2, brown, darkest of all, 3 lightest of all, 4-8 gradually becoming darker. Australia..... (97) *trybomi* Cerny
- Interocellar setae in position 1, interval 30-50 microns. (Ref. to key No. 85). So. Amer., West Indies..... (98) *insularis* Franklin
- Interocellars in position 2, interval 24-30 microns; III, 66-76 microns 91
- Interocellars in position 2-3, on a line connecting anterior margins of posterior ocelli 92
91. Body color dark, brown to blackish brown..... 92
- Body bicolorous, head and thorax pale yellow, abdomen nearly black 94
92. III, 67; VII, 11; VIII, 21 microns; seta formula: head, 56/43; prothorax, 103/110; 106/123 microns; interocellars, interval 25 microns, lower vein of fore wings with 18-21 setae. Legs concolorous with body, blackish brown, except fore tibiae, extreme bases of middle

- and hind tibiae and all tarsi which are yellowish brown; fore wings dark brown, paler in basal fourth; antennal segments, 1, 2 and 4-8 blackish brown; 3 yellow in basal third shading to grayish brown in apical half, 4 and 5 paler basally. (1.6 mm.) Peru, So. Amer. (98) *alonsoae* Hood
- III, 66; VII, 10; VI, 16 microns; seta formula: head, 76/40; prothorax, 116/120; 13/113 microns; interocellars, interval 30 microns; lower vein of fore wing with 16 setae. Fore legs mostly yellow, shaded along outer margins, middle and hind femora brown, middle tibiae shaded brown in the middle, hind tibiae brown; fore wings dark, lighter in basal fourth; antennal segments, 1 and 2 darkest, 3 and 4 somewhat lighter in basal portions. (1.4 mm.) (99) *varipes* Moulton
93. All tibiae and tarsi pale yellow, or tibiae shaded grayish brown. 93
(Refer to keys Nos. 57 and 87). Antennal segment III, 60 microns. Legs mostly yellow but with all femora darkened with black in basal two-thirds; antennae blackish brown, segments 3 and 4 yellowish basally; fore wings nearly clear with only a slight shading of brownish yellow, not brown. (58a) *stylosa* v. *colombiensis*, n. var.
- Antennal segment III, 69 microns; lower vein of fore wing with 16 setae. Body color blackish brown; inner surface of fore femora also pale yellow; fore wings brownish gray, clear in basal third. (1.4 mm.) Peru, So. Amer. (100) *auripes* Hood
- Antennal segments, III, 70-76; VII, 11; VIII, 20 microns; seta formula: head, 43/33; prothorax, 70/83; 96/90 microns; interocellars, interval 3 microns; lower vein of fore wing with 18 setae; comb on tergite 10, weak and irregular. Body color dark; fore femora yellowish brown, middle and hind femora blackish brown; fore wings dark brown, clear in basal fourth; antennal segments 3-5 and base of 6 yellow. (1.9 mm.) Argentina, So. Amer. (101) *fulvipes* Bagnall
- (Place here for reference only). Color dark, middle and hind femora dark, all tibiae and tarsi bright yellow. (1.4 mm.) Australia (102) *kellyana* Bagnall
94. Antennal segments, III, 72; VII, 12; VIII, 19 microns; seta formula: head, 72/43; prothorax, 108/110; 114/113 microns; interocellars, interval 26 microns. Body bicolorous, head, thorax and legs pale yellow; abdomen nearly black but paler in first two or three segments; fore wings pale buff, nearly colorous; antennal segments 1-5 mostly yellow, 1 often shaded with brown, 2 darker, shaded laterally and apically, 3-5 lemon-yellow in basal three-fifths, one-half and three-fifths respectively, grayish brown beyond. (1.5 mm.) Peru, So. Amer. (103) *xanthomelaena* Hood
95. Antennal segment III, 83-94 microns 96
- Antennal segment III, 105-107 microns 97
96. Antennal segments, III, 83; VII, 11; VIII, 19 microns; seta formula: head, 60/50; prothorax, 61/64; 80/86 microns; interocellars, position 2-3, interval 24 microns; lower vein of fore wing with 22 setae. Color, rich chestnut brown, legs concolorous with body, with tarsi and fore tibiae paler; fore wings dark brown at base including scale followed by a pale brownish area and dark again in apical five-sixths; antennal segments, 1, 4-8 blackish brown, 3 pale in pedicel, brownish yellow in basal half, blackish brown beyond; 4-6 usually somewhat paler at base. (2.0-2.3 mm.) Peru, So. Amer. (104) *castanea* Hood
- Antennal segments, III, 86-97; VII, 14; VIII, 19 microns; seta

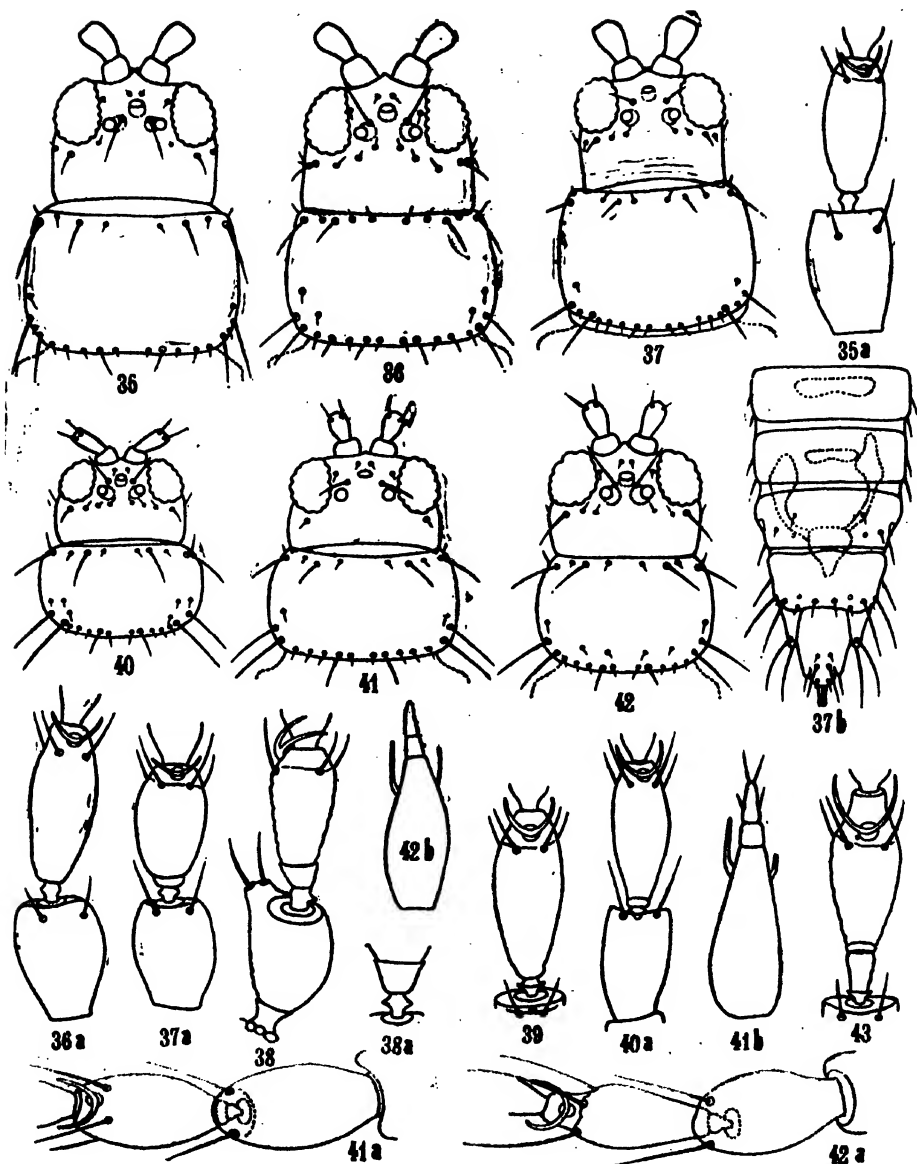


Fig. 35. *Fr. abnormis*, new species; ♀, head and prothorax; a, antennal segments 2-3. — Fig. 36. *Fr. umbrosa*, new species; ♀, head and prothorax; a, antennal segments 2-3. — Fig. 37. *Fr. fuscipennis*, new species; ♀, head and prothorax; a, antennal segments 2-3; b, ♂, end of abdomen. — Fig. 38. *Fr. cephalica* Crawford; ♀, third antennal segment. — Fig. 39. *Fr. cubensis* Hood; ♀, third antennal segment. — Fig. 40. *Fr. gardeniae*, new species; ♀, head and prothorax; a, antennal segments 2-3. — Fig. 41. *Fr. inopinata* new species; ♀, head and prothorax; a, antennal segments 2-3; b, segments 6-8. — Fig. 42. *Fr. salviae*, new species; ♀, head and prothorax; a, antennal segments 2-3; b, segments 6-8. — Fig. 43. *Fr. parvula* Hood; ♀, third antennal segment.

formula: head, 86-108/68-70; prothorax, 158-169/158-161; 158/154-179 microns; interocellars, position 2-3, interval 31-36 microns; lower vein of fore wing with 21-23 setae. Color blackish brown including femora except extreme bases of middle and hind pairs which are yellow, fore tibiae golden yellow sometimes lightly shaded with brown, middle and hind tibiae yellow in basal third and half respectively; fore wings darkest at base and at basal third, the intervening portion nearly colorless, otherwise nearly uniform brown; antennal segments, 1, 5-8 blackish brown, 2 mostly yellowish brown, 3 pale yellow in basal third shading to yellowish brown apically, 4 yellow in basal sixth, blackish brown in apical half or more. (2.5 mm.) Peru, So. Amer..... (105) *rex* Hood

— Antennal segments, III, 94; VII, 13; VIII, 23 microns; seta formula: head, 82/69; prothorax, 143/130; 150/168 microns; interocellars in position 2-3, interval 34 microns; lower vein of fore wing with 18 setae. Color blackish brown; femora concolorous with body with extreme bases of middle and hind pairs together with trochanters yellow, fore tibiae golden yellow sometimes lightly washed with brown; middle and hind pairs yellow at extreme bases shading to nearly black, tarsi yellow; fore wings dark brown in basal half of scale and in apical three-fourths, remainder of basal fourth nearly colorless; antennal segments, 1, 2 and 4-8 blackish brown, 2 yellowish apically, 3 yellow, more or less shaded apically, 4 yellow in basal sixth. (2.0-2.5 mm.) Peru, So. Amer.... (106) *regia* Hood

97. Antennal segments, III, 105; VII, 13; VIII, 22 microns; seta formula: head, 100/72; prothorax, 147/154; 160/154-168 microns; interocellars in position 2-3, interval 32-37 microns; lower vein of fore wing with 20-21 setae. Color blackish brown including femora with middle and hind pairs yellow at extreme bases, fore tibiae golden yellow, sometimes lightly shaded with brown, middle and hind pairs yellow in basal fourth and third respectively rapidly shading to nearly black, tarsi yellow to brownish yellow; fore wings brown in basal half of scale, in about the third seventh and again in apical two-fifths, their remainder nearly colorless; antennal segments, 1 and 5-8 blackish brown, 3 bright yellow, nearly white basally, sometimes lightly shaded apically, 4 pale yellow in basal sixth shading to blackish brown in apical half, 5 paler basally. (2.2-2.4 mm.) Peru, So. Amer. (107) *regalis* Hood

— Antennal segments, III, 107; VII, 16; VIII, 24 microns; seta formula: head, 93/76; prothorax, 140/153; 160/157 microns; interocellars interval 35 microns; lower vein of fore wing with 19-20 setae. Color blackish brown including femora; fore tibiae yellow, somewhat shaded, middle and hind tibiae blackish brown but with the slender basal portions rather abruptly pale brown to yellow; tarsi yellow; fore wings with base of scale brown otherwise pale in basal fourth, brown beyond; antennal segments, 1, 2, blackish brown with 2 yellow at apex, 3 golden yellow, slightly darker apically, 4 shading from yellow at base to blackish brown in apical half, 5 and 6 blackish brown, 5 paler basally. (2.2-2.3 mm.) Peru, So. Amer.....

(108) *regina* Hood

Intonsa Group, Tenuicornis Series.

98. Light colored species, yellowish white to yellow..... 99
 — Dark colored species. Antennal segments, III, 56; VII, 10; VIII, 16 microns; seta formula: head, 50/23; prothorax, 50/73; 80/76 microns; interocellars vary in position from 1, with interval of 33-40 microns to 2, with interval of 26-30 microns; without comb on tergum 8; lower vein of fore wing with 13 setae. Color, mature specimens dark brown, pterothorax with orange-yellow pigment, legs yellow with femora shaded brown in basal halves; fore wings clear; antennal segments, 1 and 2 deep brown, 3 and 4 yellow with 4 sometimes shaded apically, 5-8 brown with 5 lighter at base. Immature specimens almost entirely clear with only anterior portion of head, tip of abdomen and antennal segments 2 and 6-8 brown. (1.3-1.5 mm.) (Figs. 5, 32, a, b, c). Eur., Asia, No. Amer... (109) *tenuicornis* Uzel
99. Wings developed 100
 — Wings and ocelli wanting. Antennal segments, III, 50; VII, 13; VIII, 13 microns; seta formula: head, 40/26; prothorax, 43/46, 63/60 microns. Color white including legs and antennae except segments 5-8 which are weakly light brown. Males colored as in females. (♀, 0.91; ♂, 0.88 mm.) Trinidad..... (110) *lactea*, n. sp.
100. Interocellars, position 1, interval 33-40 microns..... 101
 — Interocellars, position 2, interval 23-30 microns..... 102
101. Antennal segments, III, 42; VII, 10; VIII, 13-15 microns; seta formula: head, 43/26; prothorax, 26-33/50-60; 66-69/60-64 microns; tergum 8 without comb; lower vein of fore wing with 11-13 setae. Color clear yellow including legs, fore wings, all setae and antennal segments 1-4, with 4 weakly darkened apically, 5 yellowish brown, 6-8 dark brown. (1.22 mm.) Iowa, Tenn.... (111) *unicolor* Morgan
 — Antennal segments, III, 52; VII, 9; VIII, 16 microns; seta formula: head, 60/44; prothorax, 44?/88; 92/92 microns; interocellars, position 1, interval 33 microns; lower vein of fore wing with 13 setae. Color pale grayish yellow with head, thorax and outer margins of legs shaded brown; setae clear; fore wings uniform pale gray; antennae dark brown with segments, 1 paler and 3 white in basal fourth. (Refer to key No. 34). (1.3 mm.) Japan, Korea, China..... (30) *livivora* Takahashi
102. Tergum 8 with fully developed comb. Antennal segments, III, 53; VII, 13; VIII, 16 microns; seta formula: head, 40/23; prothorax, 33/46; 56/50 microns; interocellars, position 2, interval 26 microns; lower vein of fore wing with 15 setae. Color very similar to *unicolor* but with antennal segments, 2 light brown, 3 and 4 clear, 5 cleared at base shading to light brown apically, 6-8 light brown. (1.4 mm.) Chili, So. Amer..... (112) *frumenti*, n. sp.
 — Tergum 8 without comb or this very weak..... 103
103. Antennal segments, III, 53; VII, 13; VIII, 16 microns; seta formula: head, 53/30; prothorax, 36/63; 83-93/73 microns; interocellars, position 2, interval 30 microns; lower vein of fore wing with 14 setae. Color clear whitish yellow including legs, wings, major setae and antennal segments 1-5 and basal half of 6, apical half of 6 with 7 and 8 weakly brown. Macropterous or brachypterous. (1.38 mm.) (Figs. 31, a, b, c). Mexico..... (113) *alba*, n. sp.
 — Antennal segments, III, 50; VII, 13; VIII, 13 microns. Seta formula: head, 43/26; prothorax, 26/63; 76/66 microns. Lower vein of fore wing with 12 setae. Color sulphur yellow including legs, wings, setae and antennal segments 1-4, basal three-fourths of 5 and half

of 6, extreme tip of 5, apical half of 6 like 7 and 8, dark brown. Macropterous or brachypterous. (1.25 mm.) Florida.....
(114) *bratleyi* Watson

Tritici-Cephalica Group, Tritici Series.

Light Colored Forms.

104. Light colored forms, often shaded with light brown or orange.....
 - North American species, including Panama, West Indies, Trinidad 105
 - Species from outside North America including Panama, West Indies, Trinidad 111
 - Dark colored forms, brown to blackish brown.....
 - North American species, including Panama, West Indies, Trinidad 120
 - Species from outside North America including Panama, West Indies, Trinidad 127
105. Antennal segment III 40-48 microns. (See also key No. 110)... 106
 - Antennal segment 48-50 microns or longer..... 107
106. Antennal segments, III, 40-43; VII, 7; VIII, 10 microns; seta formula: head, 46/16; prothorax, 40/56; 66/50 microns; interocellars, in position 2, interval 30 microns; tergum 8 without comb; lower vein of fore wing with 14 setae. Color uniform dull yellow including legs and wings; antennae mostly clear with segment 2 darker, apical half of 4 clouded, apical half of 6 with 7 and 8 light brown; ocellar pigment light brown. (1.1-1.2 mm.) Cal., Tex., Mex.....
(115) *insignis* Moulton
 - Antennal segments, III, 48; VII, 7; VIII, 12 microns; seta formula: head, 19/10; prothorax, 16/16; 42/23 microns; interocellars, in position 2, interval 30 microns; tergum 8 without comb; lower vein of fore wing with 16-18 setae. Color nearly uniform yellowish white, darker in head, thorax and tip of abdomen; ocellar pigment yellowish brown; antennal segment 2 darker, 3-5 weakly shaded apically, 6 yellow in basal third, apical two-thirds with 7 and 8 grayish brown. (1.2 mm.) Texas..... (116) *solidaginis* Hood
107. Setae on anterior margin of prothorax clearly shorter than those on anterior angles 108
 - Setae on anterior margin of prothorax as long as or longer than pair on anterior angles or all long and nearly equal in length.. 110
108. Antennal segments, III, 50; VII, 8; VIII, 10 microns; seta formula: head, 33-40/13; prothorax, 26/40; 60/50 microns; interocellars in position 2, interval 30 microns; tergum 8 without comb; lower vein of fore wing with 18 setae. Color clear yellow including legs and fore wings; antennal segments, 1 clear, 2-8 mostly dark brown with 2 lighter at center, 3 in basal third, 4 and 5 at extreme bases. (1.4 mm.) Cuba (117) *breviseta*, n. sp.
 - Setae on anterior margin and angles of prothorax 40 microns or longer 109
109. Antennal segments, III, 50; VII, 10; VIII, 10 microns; seta formula: head, 46/20; prothorax, 46/60; 73/53 microns; tergum 8 without comb; lower vein of fore wing with 16 setae. Color clear light yellow, thorax shaded with orange, legs uniformly light, fore wings pale yellow; ocellar pigment light brown; antennal segments, 1 clear, 2 brownish yellow, 3 and 5 entirely clear or at most shaded only at sides, 4 brown in apical half, 6-8 grayish brown; setae brown..

- This species is separated from *tritici* by the brown ocellar pigment, longer antero-marginal setae and shorter setae at end of abdomen. (1.25 mm.) Cal. (118) *citri* Moulton
- Antennal segments, III, 50-56; VII, 8; VIII, 10 microns; seta formula: head, 41/22; prothorax, 30/58; 73/55 microns; comb on tergum present at sides; lower vein of fore wing with 18 setae. Normal color of mature specimens, head brownish yellow, thorax shaded with orange, abdomen light brownish; legs lighter than body, wings clear; ocellar pigment orange-red; setae brown. (12 mm.) U. S., Can., Mex. (119) *tritici* Fitch
 - Clear to immature forms, without color except in antennae. East. and So. U. S., Cuba *tritici* f. *clara*, n. f.
 - Color light, abdomen yellow with gray blotches or crossbands on terga. Canada *tritici* f. *maculata* Priesner
 - Nearly uniform light brown, abdomen brown; antennae darker than in the species, wings washed with brown. (Refer to key No. 122). Mid/western U. S., Can. *tritici* f. *varicornis* Bagnall, n. comb.
110. Antennal segments, III, 53-60; VII, 9; VIII, 13 microns; seta formula: head, 50/60/30-33; prothorax, 66-83/70-90; 70-90/70-90 microns; interocellars, position 2, interval 30 microns; tergum 8 with fully developed comb. Color whitish yellow, sometimes almost clear including legs and wings; ocellar pigment bright red, setae brown; antennal segments, 1 nearly colorless, 2 sometimes darkened apically, 3 darkened in apical third, apical half of 4, tip of 5 and 6-8 grayish brown. (1.4 mm.) (Figs. 35, a, b, c). W. I., Mex., Brazil. (120) *difficilis* Hood
- Smaller form. Antennal segments, III, 43-50; VII, 7; VIII, 10 microns; seta formula: head, 33/26; prothorax, 40/40; 66/66 microns. Color as in the species. W. I., Brazil. *difficilis* f. *minor*, n. f.
 - Antennal segments, III, 53; VII, 10; VIII, 16 microns; pedicel of III weakly angulate, intermediate between *tritici* and *intonsa*; seta formula: head, 23/20; prothorax, 43/43; 56/56 microns; comb on tergum 8 wanting. Color as in *occidentalis* but with abdominal segments 9 and 10 dark brown. (1.058 mm.) Oregon. (121) *terminalis* Post
111. Light colored forms 112
- Light colored forms but with end of abdomen dark brown. 119
112. Antennal segment III, 43 microns 113
- Antennal segment III, 50 microns or longer. 114
113. The species *distinguenda* Bagnall, syn. *vernoniae* Priesner, was originally compared with *cephalica* and *melanommata* but Priesner states, in his description of *vernoniae* that the second antennal segment is simple. The species belongs here if the pedicel of the third antennal segment is angular. (Refer also to key No. 35). The following characters are from the description of *vernoniae* Priesner. Antennal segments, III, 43; VII, 7; VIII, 9 microns; lower vein of fore wing with 13-14 setae. (0.9-1.0 mm.) (See key No. 35). Paraguay, Argentina (31) *distinguenda* Bagnall
- Comb on tergum 8 wanting. Antennal segments, III, 43; VII, 7; VIII, 9 microns; seta formula: head, 33/20; prothorax, 30/46; 53/42 microns; interocellars in position 2, interval 26 microns; lower vein of fore wing with 14 setae. Color grayish yellow, fore wings distinctly washed with grayish yellow; antennal segments, 1 nearly clear, 2 noticeably darker, grayish yellow, 3-5 yellow with 4 gray-brown in apical two-thirds, 6-8 grayish brown. (0.85 mm.) Formosa. (122) *salicis*, n. sp.

- Comb on tergum 8 fully developed. Seta formula: head, 33/26; prothorax, 40/40; 66/66 microns. Color as in *difficilis*. (1.2 mm.) (Refer to key No. 110). Brazil. (120a) *difficilis* f. *minor*, new form
- 114. Interocellar setae in position 2 115
- Interocellar setae in position 3 118
- 115. Interval between interocellar setae 26-33 microns. 116
- Interval between interocellar setae 23-25 microns. 117
- 116. Refer to key No. 110 (120) *difficilis* Hood
- Antennal segments, III, 70; VII, 9; VIII, 19 microns; seta formula: head, 35/44; prothorax, -/88; -/90 microns; interocellars, interval 33 microns; lower vein of fore wing with 17 setae; pedicel of third antennal segment with a sharp-edged, saucerlike enlargement, its apical portion deeply concave to junction with major portion of segment. Tergum 8 with fully developed comb. Color, head, legs and fore wings whitish yellow, thorax and abdomen darker. (1.25 mm.) Brazil (123) *condei* John
- 117. Antennal segments, III, 52; VII, 7; VIII, 12 microns; seta formula: head, 46/29; prothorax, 68/59; 60/66 microns; interocellars, interval 25 microns; tergum 8 with fully developed comb; apical end of pedicel of third antennal segment convex in outline. Color uniform pale yellow, deepest in head and thorax. (1.3 mm.) Peru. (124) *inca* Hood
- Antennal segments, III, 57; VII, 8; VIII, 13 microns; seta formula: head, 50/36; prothorax, 70/68; 75/82 microns; interocellars, interval 23 microns; tergum 8 with comb; lower vein of fore wing with 20-21 setae. Color as in *inca*. (1.3 mm.) Peru. (125) *nubilicornis* Hood
- 118. Antennal segments, III, 60; VII, 9; VIII, 13 microns; seta formula: head, 53/29; prothorax, 72/72; 87/90 microns; interocellars, interval 23 microns; tergum 8 with comb; lower vein of fore wing with 19 setae. Color, bright orange yellow, terga 1-8 each with a dark brown line along anterior margin, abdominal segments 9 and 10 often shading to grayish brown; fore wings light yellowish brown; antennal segments, 1 pale, 2 chestnut brown and darkest, 3 and 4 grayish brown, nearly yellow at bases, 5 darker than 4, 6-8 grayish brown. (1.4 mm.) Peru. (126) *alticola* Hood
- 119. Antennal segments, III, 53; VII, 10; VIII, 13 microns; seta formula: head, 33/23; prothorax, 66/70; 83/66-90 microns; interocellars in position 2, interval 26 microns; tergum 8 with comb; lower vein of fore wing with 15 setae. Color clear yellow including legs, fore wings and abdominal segments 1-7, 8-10 dark brown; antennal segments, 1-3, half of 4 and most of 5 clear yellow, otherwise dark brown. (1.4 mm.) Brazil. (127) *bicolor*, n. sp.
- Antennal segments, III, 73; VII, 11; VIII, 18 microns; seta formula: head, 61/42; prothorax, 84/83; 91/95 microns; interocellars in position 2, interval 32 microns; tergum 8 with comb; lower vein of fore wing with 15-17 setae. Color bright orange yellow with tenth abdominal segment wholly dark brown; legs yellow, fore wings yellowish gray; antennal segments, 1 pale, 2 brownish and darker, 3 mostly yellow, 4 and 5 yellow in basal two-fifths otherwise like 7 and 8 dark grayish brown. (1.4-1.6 mm.) Peru. (128) *extremitata* Hood

Dark Colored Species.

120. Interocellar setae in position 1-2, placed on a line connecting outer margins of anterior and posterior ocelli, interval 30-35 microns. Antennal segments, III, 60; VII, 9; VIII, 16 microns; seta formula: head, 50/16-20; prothorax, 68/68; 86/73 microns; tergum 8 with comb; lower vein of fore wing with 13-16 setae. Color brown, thorax paler than abdomen with reddish orange pigment; legs pale yellow with all femora shaded brown on outer surfaces; fore wings pale brown, lighter in basal fourth; antennal segments, 1 paler than 2, 2 pale yellow at middle of apex, 3 yellowish, darkened in apical half, 4 yellow in basal fourth, grayish brown beyond, 5 with pedicel and apical half grayish brown like 6-8 but with 6 paler at base. (1.2 mm.) Panama, Br. W. Indies.. (129) *brevicaulis* Hood
- Interocellar setae in position 2, interval 26-30 microns..... 121
- Interocellar setae in position 3, interval 18-20 microns..... 126
121. Fore wings clear to light brownish yellow..... 122
- Fore wings pale brown to brown..... 123
122. Pedicel of third antennal segment as in *tritici*; antennal segments, 4 yellowish in basal third, 5 in basal two-fifths. (Refer to key No. 109c)..... (119c) *tritici* f. *varicornis* Bagnall
- Pedicel of third antennal segment clearly angulate but with enlarged portion narrower, intermediate in form between *tritici* and *intonsa*. Antennal segments, III, 60; VII, 10; VIII, 13 microns; seta formula: head, 50/36; prothorax, 50/56; 70/63 microns; interocellars, interval 26 microns; tergum 8 with comb; lower vein of fore wing with 10-12 setae. Color, head deep yellow, thorax orange brown, abdomen brown; legs mostly brown, fore tibiae and all tarsi brownish yellow; fore wings clear; antennae deep brown with segment 3 shading to clear yellow in basal third and 4 at extreme base. (1.25 mm.) (Fig. 37). Texas (130) *umbrosa*, n. sp.
123. Interocellar setae 26-46 microns; postoculars 16-23 microns.... 124
- Interocellar setae 70 microns, postoculars 42 microns..... 125
124. Antennal segments, III, 46; VII, 6; VIII, 10 microns; seta formula: head, 26/16; prothorax, 40/56; 66/60 microns; interocellars in position 2, interval 26-28 microns; tergum 8 with very weak comb or this developed only at sides; lower vein of fore wing with 14 setae. Color, cinamon brown, pterothorax deep orange, legs brown with fore tibiae brownish yellow, middle and hind tibiae lighter than femora, tarsi yellow; fore wings nearly uniform brown; antennal segments 1 and 2 darkest, 3 and 4 shading lighter at bases. (1.27 mm.) (Fig. 38). Mex., Guatemala..... (131) *fuscipennis*, n. sp.
- Antennal segments, III, 57; VII, 10; VIII, 15 microns; seta formula: head, 46/23; prothorax, 46-54/56; 87/80; interocellars, interval 31 microns; tergum 8 with comb; lower vein of fore wing with 14 setae. Color dark brown, terminal abdominal segments darkest; head paler, nearly yellow anterior to ocelli; occipital apodeme black; thorax with orange-red pigment; legs paler than body, fore pair yellow with femora shaded on margins, middle and hind femora darker, paler at either end, middle and hind tibiae yellow more or less shaded on outer surface and in the middle; antennal segments, 1 paler than 2, 2 darkest, 3-5 yellow with 3 darkened apically, 4 dark brown in apical half, 5 paler than 4 and only slightly shaded apically, 6-8 grayish brown; fore wings uniformly dark brown. (1.3 mm.) Cuba, Mex. (132) *pineticola* Hood
125. Antennal segments, III, 55; VII, 8; VIII, 15 microns; seta formula:

head, 70/42; prothorax, 59-64/80; longer/84-87 microns; interocellars, interval 34 microns; tergum 8 with thin comb; lower vein of fore wing with 17 setae. Color chestnut brown, side margins of head darker, thorax shaded with orange; legs dark with only fore tibiae brownish yellow; fore wings uniformly grayish brown; antennal segments, 1, 2 and 6-8 entirely dark, 3 cleared basally, 4 in basal fourth and 5 at extreme base. (1.5 mm.) Mex.

(133) *brunnea* Priesner

126. Antennal segments, III, 50; VII, 8; VIII, 13 microns; seta formula: head, 50/30; prothorax, 44/56-63; 73/56-63 microns; tergum 8 with sparse comb; lower vein of fore wing with 13 setae. Color dark brown, pterothorax with orange pigment; legs dark brown, fore tibiae and tarsi yellowish brown; fore wings nearly clear; antennal segments, 1, 2 and 5-8 dark brown, 3 and 4 brown, lighter at bases. (1.25 mm.) (Fig. 36). Texas. (134) *abnormis*, n. sp.

127. Antennal segments, III, 46; VII, 6; VIII, 10 microns; seta formula: head, 40/16; prothorax, 33/36; 56/56 microns; interocellars in position 2, interval 23 microns; tergum 8 with comb; lower vein of fore wing with 15 setae. Color light brown, head, thorax and legs brownish yellow; fore wings uniformly dark brown; antennae almost uniformly brown but with segment 2 darker and 3 lighter in basal half. (1.12 mm.) Brazil. (135) *caseariae* Moulton

- Antennal segments, III, 69; VII, 10; VIII, 13 microns; seta formula: head, 56/35; prothorax, 87/90; 87/- microns; tergum 8 with sparse comb; lower vein of fore wing with 13-15 setae. Color grayish brown to dark brown, pterothorax and first segment of abdomen whitish to whitish yellow; legs clear, fore wings grayish brown, clear at bases; antennal grayish brown with segment 3 clear white, 4 white at base and end and 5 white at extreme base and end. (1.0-1.2 mm.) Surinam. (136) *amabilis* Priesner

Tritici-Cephalica Group, Cephalica Series.

128. Light colored species 129
— Species brown to dark brown 133

129. Antennal segments, III, 39-42 microns, asymmetrical, pedicel simple more as in *intonsa* group; VII, 6; VIII, 8-9 microns; seta formula: head, 45/28; prothorax, 38/50; 56/50 microns; tergum 8 with sparse comb; lower vein of fore wing with 18 setae. Color clear yellow, tip of abdomen weakly orange; legs clear yellow; fore wings clear; antennal segments, 1, 2 clear, 3 and 4 shaded in apical halves, 5 in apical fourth, 6-8 gray. (1.2-1.3 mm.) Mex.

(137) *curiosa* Priesner

- Antennal segment III, 50 microns or longer, symmetrical. 130

130. Setae on anterior margin of prothorax may be shorter or as long as pair on anterior angles but these shorter than pair on posterior angles; tergum 8 without comb or this very weak. 131

- All pronotal setae long and nearly subequal, tergum 8 with fully developed comb 132

131. Almost segments, III, 50-59; VII, 7; VIII, 10 microns; seta formula: head, 50/53; prothorax, 46/50; 66/56 microns; interocellars in position 2, interval 30 microns; tergum 8 without comb; lower vein of fore wing with 15-17 setae. Color almost clear to yellow including legs and fore wings; antennal segments, 1 clear, 2 clouded apically, 3-5 mostly clear with 4 darkened in apical half, 6-8 brown. (1.3

- mm.) (Fig. 39a). No. and So. Amer., West Indies.....
(138) *cephalica* Crawford
- Apical end of second antennal segment does not project over base of three as in the species; enlarged portion of pedicel more rounded and not sharp-edged as in the species. Fla.....
cephalica var. *bruneri* Watson
- Pedicel of third antennal segment broader, 12 as compared with 8-9 microns in the species and this enlargement is more saucer-like in shape as in *cubensis* while in the species the angulation is more or less irregular..... *cephalica* var. *bispinosa* Morgan
- Smaller than the species and lighter in color.....
cephalica var. *masoni* Watson
- Antennal segment 2 very long and apical dorsal portion projecting well over segment 3. Clear straw yellow without orange coloring to deep orange in thorax and abdomen never brownish. Fla.....
cephalica var. *projectus* Watson
- Base of third antennal segment above the pedicel shaped like a narrow cylinder, in the species this is like an inverted cut-off cone. Color nearly clear with light orange pigment in head and thorax. Porto Rico..... *cephalica* v. *echinodori*, n. var.
- Antennal segments, III, 55; VII, 7.5; VIII, 10 microns; seta formula: head, 32-36/24; prothorax, 34/44; 56/38 microns; interocellars in position 2, interval 24 microns; tergum 8 without comb; lower vein of fore wing with 10-15 setae. Color yellow; antennal segments, 1 and 5 yellow, 3 grayish in apical end, 4 in apical third, 6-8 gray. (1.1 mm.) West Indies..... (139) *melanommata* Williams
- Antennal segments, III, 50; VII, 7; VIII, 11 microns. Seta formula: head, 43/28; prothorax, 45/50; 62/46 microns; interocellars in position 2, interval 27 microns. Tergum 8 with comb; lower vein of fore wing with 13-15 setae. Color nearly uniform pale yellow, deepest in pterothorax, legs paler than body, fore wings with orange pigment in veins; antennal segments, 1 and 2 whitish yellow, 2 with orange pigment at sides, 3 and 4 pale yellow with 3 grayish brown in apical fourth and 4 in apical half, 5 shaded at base, along sides and at tip, 6 yellowish brown at base otherwise like 7 and 8 grayish brown. (1.3-1.5 mm.) Puerto Rico, Mex.... (140) *borinquen* Hood
132. Antennal segments, III, 52-56; VII, 8; VIII, 10 microns. Seta formula: head, 40-56/26-33; prothorax, 56-70/60-73; 66-80/66-80 microns; interocellars, position 2, interval 30-33 microns; tergum 8 with comb; lower vein of fore wing with 15-18 setae. Pedicel of third antennal segment with a broad saucer-like expansion 12 microns wide. Color yellow, nearly white, ocellar pigment bright red; antennal segments, 1 nearly colorless, 2 darkened apically, apical half of 4 and 6-8 grayish-brown. (1.1 mm.) (Figs. 40, a). Brazil.....
(141) *cubensis* Hood
- Antennal segments, III, 56; VII, 10; VIII, 13 microns. Seta formula: head, 50/26; prothorax, 66/70; 76/76 microns. Interocellars, position 2, interval 26 microns; tergum 8 with long comb; lower vein of fore wing with 16 setae. Color, head, abdomen, legs and wings clear yellow, thorax bright orange yellow; antennal segments, 1-3, basal halves of 4 and 5 clear yellow, apical half of 4 and 6-8 grayish brown; ocellar pigment deep red. (1.2 mm.) (Fig. 41). Mex.
(142) *gardeniae*, n. sp.
133. Antennal segment III, 43 microns 134
- Antennal segment III, 50 microns or longer..... 135

134. Antennal segment II almost as wide as long, 31 as to 33 microns, with a conspicuous bulge at middle of sides; III, 44; VII, 9; VIII, 11 microns. Seta formula: head, 30/minute; prothorax, 37/small; 62/53 microns; interocellars in position 2-3, on a line connecting anterior margins of posterior ocelli; tergum 8 with comb; lower vein of fore wing with 18 setae. Color brown, head paler in front of ocelli, abdomen darker; fore and middle femora yellow, shaded on outer surface, hind femora brown, paler than abdomen, narrowly yellow at tip, tibiae and tarsi yellow; fore wings uniformly light brown; ocellar pigment red; antennal segments, 1 yellowish gray, 2 and 6-8 grayish brown, 3 bright yellow, 4 yellow in pedicel otherwise brownish, 5 largely grayish brown, darker than 4, yellowish basally. (1.0 mm.) Panama..... (143) *diversa* Hood
- Antennal segment II normally symmetrical, 36 by 23 microns; III, 43; VII, 7; VIII, 13 microns; seta formula: head, 33/16; prothorax, 43/46; 56/50 microns; interocellars in position 2, interval 26 microns; tergum 8 with comb; lower vein of fore wing with 16 setae. Color, head and thorax orange brown, abdomen brown; legs mostly brown with fore tibiae and tarsi lighter; fore wings uniformly light brown; antennae brown with segments 2 and 6-8 darker. (1.15 mm.) Mex... (144) *inopinata*, n. sp.
135. Antennal segments, III, 50; VII, 10; VIII, 13 microns; seta formula: head, 50/40; prothorax, 60/60; 70/73 microns; interocellars in position 2, interval 23 microns; tergum 8 with comb; lower vein of fore wing with 14 setae. Color, head and thorax bright golden brown, prothorax with a faint shading of orange, abdomen brown; legs mostly yellow with femora shaded along margins; fore wings uniformly brown; antennae mostly dark brown with only segment 3 and basal portion of 4 clear yellow, 5 lighter at extreme base. (1.47 mm.) (Figs. 43, a, b). Texas..... (145) *salviae*, n. sp.
- Antennal segment III 60 microns or longer..... 136
136. Antennal segment III, 61 microns, its pedicel short, with a very broad, 14 microns, sharp angulation; VII, 10; VIII, 16 microns; seta formula: head, 49/smaller; prothorax, 58/38; 77/77 microns; tergum 8 with comb; lower vein of fore wing with 13-14 setae. Color, brown, abdomen darker, thorax with orange pigment; fore femora yellow apically and on inner surface, middle and hind femora brown, tibiae and tarsi yellow; fore wings uniformly brown; antennal segments, 1 grayish brown, paler than head, with orange pigment, 3 and 4 bright orange yellow, 4 weakly shaded apically, 5 yellowish, gray in apical half, 6-8 brownish gray; ocellar pigment red. (1.14 mm.) Panama..... (146) *standleyana* Hood
- Antennal segment III longer, the angulation of its pedicel not over 10 microns..... 137
137. Antennal segment III, 64 microns, its pedicel longer than in *standleyana* and stouter than in *parvula*; VII, 10; VIII, 17 microns. Color light brown, end of abdomen darkest; femora brown, yellow at base and apex, fore pair also yellow on inner surface; tibiae and tarsi yellow; fore wings nearly uniform pale brown; antennal segments, 1, 2 and 4-8 brown, 2 darkest, 3 brownish yellow, 4 and 5 paler basally. (1.1 mm.) Panama..... (147) *zeteki* Hood
- Antennal segment III, 66-75 microns, its pedicel long and slender, approximately 3.0 times as long as its greatest width; VII, 10; VIII, 17 microns; seta formula: head, 43-46/16; prothorax, 50/53; 70/60 microns; interocellars in position 1-2, interval 33-36 microns; tergum 8 with a sparse comb; lower vein of fore wing with 13

setae. Color light brown, abdomen brown with apical segments darkest; femora brown, paler apically, tibiae and tarsi pale yellow; fore wings brown; antennal segments, 1, 2 and 4-8 brown, 2 darkest, 3 yellowish gray, 4 and 5 paler basally. (1.1-1.3 mm.) Mex., Panama (148) *parvula* Hood

Notes and Synonyms.

Genus *Frankliniella* Karny

I. Minuta Group.

1. *achaeta* Hood, 1925, p. 81. — Colorado, Canada. Syn. *Taeniothrips pearsalli* Moulton, 1927, p. 192.

2. *minuta* Moulton, 1907, p. 56. — West U. S., Mexico, Canada. Syn. *minuta* var. *setosa* Craw. (Hood, 1914, p. 38).

2a. *F. minuta* f. *colombiana*, new form

Colombia, S. A. Length 1.2 mm. Antennal segments, length (width) in microns: III 28 (21), VI 37, VII 7, VIII 10. Position of interocellar setae 2-3, interval 16 microns. Major setae, length in microns: prothorax, antero-marginals 10, anterior angles 30, post. ang. inner 43, post. ang. outer 36; tergum IX, median 56, midlateral 80, lateral 92; tergum X, median 100, midlateral 100. Number of minor setae on anterior margin of prothorax between antero-marginals 2. Comb on tergum VIII present. Setae on fore wings; fore vein 18, lower vein 17.

2b. *F. minuta* f. *luminosa*, new form

See key.

3. *F. watsoni*, new species

Type loc. Eagle Nest, New Mex. Length 1.4 mm. Antennal segments, length (width) in microns: III 43 (22), IV 36, V 30, VI 46, VII 10, VIII 13. Position of interocellar setae 2, interval 26 microns. Major setae, length in microns: prothorax, antero-marginals 10, anterior angles 10, post. ang. inner 50, post. ang. outer 40; tergum IX, median 56, midlateral 106, lateral 110; tergum X, median 93, midlateral 93. Number of minor setae on anterior margin of prothorax between antero-marginals 2. Comb on tergum VIII present. Setae on fore wings, fore vein 18, lower vein 13. Species close to *minuta* but separated by the clear yellow intermediate antennal segments and the lighter colored fore tibiae and tarsi.

4. *tympanona* Hood, 1915, p. 21. — Peru, S. A.

5. *curta* Hood, 1941, p. 654. — Trinidad.

6. *oxyura* Bagnall, 1919, p. 267. — So. America. Syn. *minuta* var. *paraguayensis* Priesner.

8a. *oxyura* f. *adusta* Priesner, 1921, p. 189.

7. *fuscicornis* Moulton[†], 1933, p. 124 (new name for *fulvicornis* Mlt. nec Uzel). — Brazil.

8. *F. varitibia*, new species

Mexico, taken at Brownsville, Texas. Length 1.2 mm. Antennal segments, length (width) in microns: III 42 (21), IV 40 (21), V 30 (18), VI 43 (20), VII 7, VIII 10. Position of interocellar setae 2-3, interval 20 microns. Major setae, length in microns: head, interocellars 16, postoculars 16; prothorax, antero-marginals 33, anterior angles 33, post. ang. inner 50, outer 46; tergum IX, median 66, midlateral 90, lateral 83; tergum X, median 100, midlateral 76. Number of minor setae on anterior margin of prothorax between antero-marginals 2. Comb on tergum VIII present. Setae on fore wings: fore vein 19, lower vein 17. Separated from other members of the *minuta* group by the variegated color of middle and hind tibiae.

9. *trisetosa* Hood, 1941, p. 656. — Peru.

10. *serrata* Moulton, 1933, p. 125. — Brazil.

11. *maculipes* Hood, 1941, p. 659. — Peru. Male: Color of body and legs yellow, abdomen more or less shaded with brown; sterna 3-7 each with a subelliptical sense area. Host: flowers of a composite.

II. *Intonsa* Group, *Intonsa* Series.

a) *Light colores species from North America including Panama, West Indies and Trinidad.*

12. *vaccinii* Morgan, 1928, p. 294. — Maine, Wash. D. C. Host: *Vaccinium vacillans*.

13. *runneri* Morgan, 1913, p. 7. — Tenn., Wash. D. C. Closely related to *gossypiana* but separated by the clearly longer eighth antennal segment as compared with the seventh, longer median setae on tergum IX and fewer setae on veins of fore wings.

14. *gossypiana* Hood, 1936, p. 8 (new name for *gossypii* Morgan, 1913, p. 9). — So. and West. U. S., Mexico. Almost identical with *runneri* in form and color but separated by the somewhat stouter antennae, shorter setae on tergum IX and by more numerous and closely placed setae on veins of fore wings; with the same general appearance as *ornata* but separated by the fully developed comb on tergum VIII.

15. *exigua* Hood, 1925, p. 78. — U. S., Mexico. Syn. *Fr. gilmorei* Morgan, 1925, p. 140 (new synonymy).

16. *rostrata* Priesner, 1932. — Mexico. Male: Colored as in female, smaller; sense areas on sterna short-oval in shape when visible; comb on tergum VIII as in female; tergum IX with short median setae, 20-22 and a longer lateral pair, 50-56 microns. Host: *Senecio praecox*.

17. *genuina* Hood, 1925, p. 79. — Texas: "Postoculars reduced, pronotal setae short, stout, inner pair on posterior angles longest". Host: *Echinochloa colona* and other plants.

18. *molesta* Priesner, 1932, p. 181. — Mexico. Host: *Senecio salignus*.

19. *inornata* Moulton, 1936, p. 62. — So. U. S., Mexico, Cuba. Comb

on tergum VIII usually completely wanting, sometimes it is weakly developed at the sides with extremely fine and widely spaced setae. Male: clearer yellow than female but the thorax sometimes darkened; tergum VIII without comb; tergum IX with small median setae, 20 and longer midlateral setae, 56 microns. The species was originally described from Cuba taken from blossoms of oleander and mango. It has since been collected from many flowers in the southern states and Mexico. It blends into the smaller and lighter colored forms of *occidentalis* and it is often difficult to differentiate between them.

20. *F. ipomoeae*, new species

Holotype female: Length 1.17 mm. Antennal segments, length (width) in microns: III 46 (17), IV 40 (16), V 33 (16), VI 43, VII 10, VIII 13. Position of interocellar setae 3, interval 16 microns. Major setae, length in microns: head, interocellars 46, postoculars 36; prothorax, antero-marginals 56, anterior angles 60, post. ang. inner 70, outer 60; tergum IX, median 90, midlateral 106; tergum X median 100, midlateral 86. Number of minor setae on anterior margin of prothorax between antero-marginals 4. Comb on tergum VIII present. Setae on fore wings: fore vein 20, lower vein 14. — Allotype male: colored as in female but with antennal segments I-V lighter and VI nearly clear yellow at base; comb on tergum VIII as in female; tergum IX with two short median setae, 23, and a long midlateral pair, 73 microns.

Holotype, allotype, paratypes 1 male and 1 female, taken on *Ipomoea batatas*, Haiti, Dec. 1929, by H. L. Dozier (4472).

This species is very similar to *sulphurea* but separated by the much shorter setae on head and anterior margin and angles of prothorax, and the fully developed comb on tergum IX.

21. *sulphurea* Schmutz, 1913, p. 1019. — Syn. *pembertonii* Moulton, 1940, p. 247. India, Australia, New Guinea, Ceylon, Ter. Haw., Jamaica.

22. *williamsi* Hood, 1915, p. 19. — No. and So. Amer., Ter. Haw., Phil. IIs. Syn.: *Fr. flavens* Mlt. 1928, p. 108; *Fr. spinosa* Mlt. 1936, p. 61. Male colored as in female but the shaded portions of antennal segments lighter; tergum VIII with comb as in female; tergum IX with a short median and longer midlateral pair of setae, all setae clear yellow. This species is usually found on corn and also has been taken on leaves of sugar cane.

23. *trinidadiensis* Hood, 1941, p. 623. — Trinidad. Host: grass sweepings.

24. *occidentalis* Pergande, 1895; Hinds, 1902, p. 152. — No. Amer. Male: Color clear yellow, without shading of brown on body, setae nearly clear, antennal segment VI lighter in basal third; median setae on tergum IX, 20, midlaterals 66 microns. Originally described from specimens taken on apricot foliage and in orange blossoms in the Los Angeles area but is now recognized as a common species in western and southern states, Canada and Mexico.

25. *ameliae* Hood, 1925, p. 77. — Panama. "Antero-marginal bristles half as long as pronotum and equal to those on posterior angles".

26. *F. aurea*, new species

Body length 1.3 mm. Antennal segments, length (width) in microns: III 53 (23), IV 52, V 48, VI 56, VII 12, VIII 20. Position of interocellar setae 2-3, interval 20 microns. Major setae, length in microns: head, interocellars 60, postoculars 40; prothorax, antero-marginals 50-86, anterior angles 73-93, post. ang. inner 83, outer 90; tergum IX, median 110, midlateral 126; tergum X, median 126, midlateral 126.

Holotype female, intercepted at Brownsville, Texas on *Florpondias*, from Mexico.

The ocelli are large, 16 microns in diameter, in this species and the interval between them is 32 microns or 2.0 times their diameter; head length 0.126 mm, width 0.15 mm, or 0.2 wider than long, with nearly straight and parallel cheeks; comb on tergum VIII is complete with rather long, closely placed microsetae.

27. *gemina* Bagnall, 1919, p. 265; Priesner, 1932, p. 178. — Paraguay, S. A.; Mexico. Female: head approximately 0.5 times wider than long, cheeks somewhat arched, narrowed posteriorly; with comb on tergum VIII. Male: Entirely clear yellow, with dark setae; antennae clear yellow, segment IV weakly colored in apical half, V only at apical end, VI clear yellow in basal 2/5; tergum IX with a pair of dorsally directed almost thorn-like spines, midlaterals longer, 67 microns, others thick and very dark colored. — Bagnall described *gemina* from specimens taken in Paraguay, S. A. and compared it with *distinguenda* which in turn was compared with *melanommata*. The specimens from Mexico as described by Priesner are almost identical with *helianthi* with exception that antennal segments I-III are described as nearly clear with II only slightly shaded. Host of Priesner's specimens from Mexico was *Senecio salignus*. — The variety *pseudotritici* Priesner is very close to *californica* f. *trehernei* (new combination), and there seems to be no single character as given in Priesner's description to separate it from the paratype of *trehernei*.

28. *helianthi* Moulton, 1911, p. 40. — Cal., Colo., Utah. Female: head approximately 0.3 wider than long, with nearly straight, parallel cheeks; comb on tergum VIII composed of a few microsetae at sides. Male: Colored as in female but with antennae noticeably lighter in color; antennal segment III, 50 (18) microns; tergum IX with median setae 23, midlaterals 73 microns.

29. *yuccae* Moulton, 1935, p. 171. — So. California. Male: Somewhat lighter than female; median setae on tergum IX 36, midlaterals 80 microns. Host: flowers of *yuccae*.

b) *Light colored species from outside of North America, Panama, West Indies, Trinidad.*

30. *lilivora* Takahashi, 1937, p. 269. — Japan, Korea, China. Male: Total length 0.956 mm; median setae on tergum IX 36 microns. Host: lily bulbs.

31. *distinguenda* Bagnall, 1919, p. 264. — Paraguay, S. A. Male: smaller and more slender than female; macrochaetae on terminal abdominal segments long, stout. Syn. *vernoniae* Pr.

32. *bondari* Hood, 1941, p. 622. — Brazil. Easily confused with *williamsi* but without comb on tergum IX.

33. *pallida* Uzel, 1895, p. 101; Priesner, Mon. 1926, p. 256. — Europe.

34. *ononidis* Bagnall, 1934, p. 491. — France. Host: *Ononis repens*.

35. *delicatula* Bagnall, 1919, p. 263. — East Africa. Resembles *pallida* but antennae more slender and style longer; pronotal setae shorter than in *pallida*, setae on inner margin of hind tibiae are fewer in number.

36. *priesneri* Bagnall, 1923, p. 629. — Tunis, Africa. Like *pallida* in color, size and form but differs by its shorter, stouter antennae, shorter apical abdominal setae and longer postocular and antero-marginal setae.

37. *gossypii* Shiraki, 1912, p. 65. — Japan. Description incomplete.

38. *rodeos* Moulton, 1933, p. 115. — Brazil. Male: Smaller and lighter than female; median setae on tergum IX 16, outer pair 30 microns.

39. *allochroos* Moulton, 1933, p. 116. — Brazil.

40. *dampfii* Priesner, 1923, p. 64. — So. Europe, No. Africa, India.

40a. *dampfii* f. *nana* Priesner. — Egypt, Ter. Haw.

40b. *dampfii* f. *interocellaris* Priesner.

41. *favoniana* Priesner, 1923, p. 64. — S. W. Africa.

c) *Dark colored species from North America including Panama, West Indies and Trinidad.*

42. *fuscicauda* Hood, 1927, p. 197. — Arizona. Description incomplete.

43. *nigricauda* Hood, 1925, p. 50. — Trinidad. Description incomplete.

44. *fusca* Hinds, 1902, p. 154. (The Tobacco Thrips). — Syn. *nicotiana* Hinds. E. and So. U. S., Mexico, Ter. Haw. Male: Smaller and lighter in color than females, body almost clear yellow with thorax darkened.

45. *andrei* Moulton, 1936, p. 63. — Iowa. Host: taken from moss.

46. *venusta* Moulton, 1935, p. 172. — California. Host: California sage.

47. *bagnalliana* Hood, 1925, p. 79. — Panama.

48. *tridacana* Hood, 1937, p. 104. — Panama. Male: Colored as in female but with antennae sometimes more yellowish; median dorsal setae on tergum IX 26, lateral 73 microns; sterna 3-7 each with a transverse, narrowed-at-middle sense area.

49. *F. dahliae*, new species

Total length 1.39 mm. Antennal segments, length (width) in microns: III 46 (23), IV 42 (23), V 40 (20), VI 50 (21), VII 8, VIII 20. Position of interocellar setae 2, interval 23 microns. Major setae, length in microns: head, interocellars 50, postoculars 30; prothorax, antero-marginals 56-76, anterior angles 66-83, post. ang. inner 66-86, outer 66-73; tergum IX, median 110, midlateral 120; tergum X, median 126, midlateral 110. Number of minor setae on anterior margin of prothorax between antero-marginals 4. Comb on tergum VIII present. Setae on fore wings: fore vein 18, lower vein 16.

Host: "sea dahlia". Holotype female (689), San Diego, Cal.

50. *F. dianthi*, new species

Total length 1.32 mm. Antennal segments, length (width) in microns: III 48 (23), IV 43 (21), V 36 (16), VI 46 (20), VII 10. Position of interocellar setae 2, interval 23 microns. Major setae length in microns: head, interocellars 46, postoculars 33; prothorax, antero-marginals 60, anterior angles 70, post. ang. inner 90, outer 73; tergum IX, median 116, midlateral 126, lateral 123; tergum X, median 136, midlateral 120. Number of minor setae on anterior margin of prothorax between antero-marginals 2. Comb on tergum VIII present. Setae on fore wings: fore vein 18-19, lower vein 14-15.

Host: *Dianthus* sp. Type material: holotype and 1 paratype, females, from Mexico, intercepted at Brownsville, Texas.

51. *conspicua* Moulton, 1935, p. 173. — California. Host: *Orthocarpus lacerus*.

52. *F. syringae*, new species

Total length 1.5 mm. Antennal segments, length (width) in microns: III 66 (20), IV 53 (20), V 36 (18), VI 53 (18), VII 10, VIII 13. Position of interocellar setae 2, interval 33 microns. Major setae, length in microns: head, postoculars 43; prothorax, antero-marginals 60, anterior angles 66, post. ang. inner 73, outer 70; tergum IX, median 93, midlateral 126, lateral 106; tergum X, median 130, midlateral 116. Number of minor setae on anterior margin of prothorax between antero-marginals 4. Comb on tergum VIII present. Setae on fore wings: fore vein 20, lower vein 13.

Host: flowers of lilac, from Mexico, intercepted at El Paso, Texas.

53. *californica* Moulton, 1911, p. 28. — West. N. A., Colombia, S. A. Syn.: *Fr. canadensis* Morgan, 1925, p. 142; *Fr. claripennis* Morgan, 1925, p. 143; *Fr. moultoni* Hood, 1914, p. 38; ?*Fr. occidentalis* f. *brunescens* Priesner, 1932, p. 182.

53a. *californica* f. *trehernei* Morgan, 1925, p. 143 (new combination). — West. U. S., Canada, Mexico. Syn. ?*gemina* v. *pseudotritici* Pr.

54. *tolucensis* Watson, 1942, p. 43. — Toluca, Mexico. Host: Flowers of *Eryngium*.

55. *obscura* Moulton, 1935, p. 172. — California. Host: *Caenothus*, grass.

56. *nubila* Treherne, 1924, p. 84. — Canada. Host: *Casiope*, a moss heather.

57. *stylosa* Hood, 1912, p. 134. — Syn. *floridensis* Morg. E. and So. U. S., Mexico. Male: Smaller and lighter in color than female; tergum IX with short median setae, 26, and longer midlaterals, 90 microns, these in a straight transverse line with macrochaetae at sides, all are blackish and conspicuous. Common on many host plants.

57a. *F. stylosa* var. *colombiensis*, new variety

Type material and locality: Holotype and 7 paratype females, allotype and 3 paratype males, taken on a legume at Bogotá, Colombia by E. J. Hambleton, Nov. 1944.

58. *grandis* Moulton, 1936, p. 63. — N. Dakota. Hosts: Taken in wild aster, subflower and goldenrod.

59. *panamensis* Hood, 1925, p. 76. — Panama. Host: Flowers of *Boquete*.

60. *pulchella* Hood, 1935, p. 163. — Panama. Male: Smaller and paler in color than female, with transverse sensory areas on sterna 3-8; median setae on tergum IX 27, lateral pair 67 microns. In flowers of various plants.

61. *pontederiae* Watson & Preer, 1938, p. 17. — Florida. Male: Smaller than female, color brownish yellow; sterna 3-7 each with a large oval sensory area. Host: *Pontederia cordata*.

62. *deserti-leonidum* Watson, 1942, p. 45. — Mexico. Sweeping herbs in the "Desert-of-the-Lions".

63. *inutilis* Priesner, 1932, p. 183. — So. U. S., Mexico. Male: Nearly clear yellow, thorax weakly shaded with orange; wings light; median setae on tergum IX 32, lateral 64 microns. Hosts: Yellow composites, in blossoms of *Eupatorium* and *Senecio praecox*.

64. *simplex* Priesner, 1924, p. 532. — Mexico. Males with broad-ovate sensory areas on sterna 3-7, these varying in size. Species taken from numerous plants Original types collected in the Desert of the Lions.

64a. *simplex* f. *celata* Priesner, 1932, p. 185.

d) Dark colored species from outside of North America, Panama, West Indies and Trinidad.

65. *aeschyl* Girault, 1926, p. 188 (Private papers); Kelly & Mayne, 1934, Australian Thrips, p. 20.

66. *vicina* Karny, 1922, p. 94. — Indo China. Male smaller, abdomen paler than in female, grayish yellow. Host: *Celosia argentea*.

67. *persetosa* Karny, 1923, p. 97. — Siam. Host: flowers of *Ipomoea* sp.

68. *nigriventris* Uzel, 1895, p. 106; Priesner, Mon. 1926, p. 259. — Central Europe. Male: Body nearly clear yellow. Host: Roses, blossoms of *Hieracium pilosella*.

69. *tristis* Priesner, 1920, p. 56; Mon. 1926, p. 259. — Austria.

70. *intonsa* Trybom (Priesner, Mon. 1926, p. 251). — Syn. *breviceps* Bagn., *brevistyla* Karny, *F. annulicornis* Pr. is a synonym of *intonsa* f. *nigropilosa* Uzel. Europe. Male: Smaller, body color clear yellow, sometimes with gray coloring; sterna 3-7 each with a small sensory area which is visible only in darker specimens. Species common on many plants.

71. *formosae* Moulton, 1929, p. 291. — Formosa. Male: Colored as in female or lighter. Species common on many plants.

72. *tabacicola* Kerny, 1925, p. 4. — Java. Common on leaves and flowers of tobacco.

73. *fiebrigi* Priesner, 1921, p. 187. — Paraguay, S. A. Host: Male flowers of *Cecropia peltata*.

74. *peruviana* Hood, 1937, p. 102. — Peru. "Structure of the basal part of the third antennal segment is quite unlike that of any other known species".

75. *australis* Morgan, 1925, p. 139. — Argentina.

76. *schultzei* Trybom, 1920, p. 147. — Africa, So. America, Australia, New Guinea. Male smaller, somewhat lighter in color; sense areas on sterna 3-7 elongate elliptical when visible. Synonyms: *Fr. africana* Bagnall, Ann. Mag. Nat. Hist., vol. 18, 1926, p. 100 (Africa); *Parafrankliniella nigripes* Girault, 1928, Private papers, p. 4; *Fr. insularis*, Samuel, Bald, Pitman, Investigations on Spotted Wilt of Tomatoes, Commonwealth of Australia, 1930, Bull. 44; *Fr. insularis* Davidson & Bald, 1930, Description and Bionomics of *Fr. insularis*; *Fr. paucispinosa* Moulton, 1933, p. 122 (Brazil); *Fr. lycopersici* Andrewartha, 1937, Roy. Soc. So. Australia, vol. 61, p. 163; *Fr. clitoriae* Mlt., 1940, p. 248 (New Guinea). *Fr. anglicana* Bagnall, 1926, Ent. Mo. Mag., vol. 42, p. 281, also a possible synonym, as indicated by measurements and color. *Fr. trybomi* Karny (Australia) may also belong here. The species has been taken from numerous host plants but the intensive studies of this insect made by Messrs. Samuel, Bald, Pitman and Davidson in Australia show that it is a vector of the virus causing the Spotted Wilt Disease of tomatoes.

76a. *F. schultzei* var. *nigra*, new variety

Total length 1.2 mm. Antennal segments, length (width) in microns: III 53 (20), VII 10, VIII 16. Position of interocellar setae 3, interval 13 microns. Major setae length in microns: head, interocellars 50, postoculars 33; prothorax, antero-marginals 50, anterior angles 46, post. ang. inner 66, outer 78; tergum IX, median 106, midlateral 130; tergum X, median 126, midlateral 116. On anterior margin of prothorax 2 minor setae between antero-marginals. Comb on tergum VIII wanting. Setae on fore wings: fore vein 14-16, lower vein 12-14.

77. *anglicana* Bagnall, 1926, p. 281. — England. Host: pine.

78. *compositarum* Hood, 1941, p. 662. — Peru. Host: Flowers of *Senecio* sp.

79. *cestrum* Moulton, 1926, p. 9. — Chile. Host: *Cestrum parqui*. Species distinctive because of clear, oval tympanum on either side of sterna 3.

80. *fulvipennis* Moulton, 1933, p. 121. — Brazil. Male colored as in female; sterna 3-7 each with a clear, sole-shaped sensory area.

81. *argentinae* Moulton, 1935, p. 2. — Argentina.

82. *xanthanæ* Hood, 1941, p. 644. — Peru. Male: Color, body and legs almost uniform yellow; sterna 3-7 each with a subelliptical sensory area. Hosts: taken from flowers on many plants.

83. *antennata* Hood, 1937, p. 107. — Peru. Species distinctive because of the long fourth antennal segment.

84. *longispinosa* Moulton, 1933, p. 116. — Brazil.

85. *speciosa* Moulton, 1933, p. 117. — Brazil. Species distinctive in the long, vase-shaped antennal segments III and IV, with long sense cones and long transparent area at base of sense cone on segment VI.

86. *tuberosi* Moulton, 1933, p. 120. — Ecuador. Male: Colored mostly orange yellow, lighter than female.

87. *setipes* Bagnall, 1919, p. 18. — Argentina.

88. *phaeaner* Hood, 1941, p. 638. — Peru. Male color almost as in female, sterna 3-7 each with a subelliptical sensory area highly variable in size.

89. *cognata* Hood, 1941, p. 641. — Peru.

III. *Intonsa* Group, *Insularis* Series.

a) *Species from North America including Panama, West Indies and Trinidad.*

90. *insularis* Franklin, 1908, p. 175. — Syn. *Euthrips cephalicus* var. *reticulata* Craw. 1910, p. 155. Male smaller, colored the same or lighter than female, sense areas on sterna 3-7 transverse, narrowed at middle. This is a common species throughout the southern states, Mexico, West Indies and South America, is found on many plants and often becomes a series pest.

91. *fortissima* Priesner, 1925, p. 311. — Mexico. Male colored as in female or somewhat lighter; sense areas on sterna 3-7 transverse; macrochaetae at sides of tergum IX especially strong and black.

91a. *fortissima* f. *curticornis* Priesner, 1933, p. 49. — Host: *Sedum* sp., cotton.

92. *sulfuripes* Hood, 1937, p. 98. — Panama. Male: Bicolourous, head, thorax and legs light yellowish, abdomen brown, with dorsal sclerites and sides of metathorax brownish; abdomen paler basally and darkest in segments 3-8; sense areas on sterna 3-8 transverse, narrowed at middle. Host: flowers of *Solanum subinerme*.

93. *fallaciosa* Priesner, 1933, p. 145. — Mexico. Male: Colored as in female; sense areas on sterna 3-7 varying in size and form, 72-76 microns broad; median setae on tergum IX 40, midlaterals 108-120 microns.

93a. *fallaciosa* f. *parvifossis* Priesner, 1933, p. 146. — Color and shape as in the species. Host: Taken in blossoms.

94. *citripes* Hood, 1916, p. 115. — Cuba. Host: Citrus flowers.

95. *annulipes* Hood, 1915, p. 16. — Panama. Host: Flowers.

96. *ingentissima* Priesner, 1933, p. 49. — Mexico.

b) *Species from outside North America, Panama, West Indies and Trinidad.*

97. *trybomi* Karny, 1920, p. 36. — Australia. Description incomplete.

98. *alonsoae* Hood, 1941, p. 665. — Peru. Male: Color as in female but somewhat lighter; sterna 3-7 each with a subelliptical sense area, narrowed at middle. Host: Flowers of *Alonsoa acutifolia*.

99. *varipes* Moulton, 1933, p. 118. — Brazil. Hosts: *Inga marginata*, in lemon and orange blossoms.

100. *auripes* Hood, 1915, p. 18. — Peru. Host: "Jerusalem cherry".

101. *fulvipes* Bagnall, 1919, p. 265. — Argentina.

102. *kellyana* (Bagnall) Kelly & Mayne, 1934, p. 20. — Australia. Description incomplete.

103. *xanthomelaena* Hood, 1937, p. 492. — Peru. Host: *Rubus floribundus*.

104. *castanea* Hood, 1941, p. 647. — Peru. Male: Colored as in female; sense areas on sterna 3-7 unusually small, subelliptical, transverse.

105. *rex* Hood, 1941, p. 627. — Peru. Male: Color yellow, with last two abdominal segments and all major setae nearly black; abdominal segments V and VI yellow but each with a brown area behind middle,

VII yellow in basal third and nearly black beyond, VIII yellowish in basal half. Host: Shrubs.

106. *regia* Hood, 1941, p. 635. — Peru. Male: Color of body and legs almost uniform yellow, head and thorax somewhat more deeply shaded; sense areas on sterna 3-7 transverse and subelliptical. Host: *Delostoma dentatum* and flowers of an unidentified plant.

107. *regalis* Hood, 1941, p. 631. — Peru. Male: Color yellow, with last six abdominal segments and all major setae nearly black; abdominal segments V-VII narrowly yellow across most of base, sense areas on sterna 3-7 transverse and subelliptical.

108. *regina* Hood, 1937, p. 268. — Peru. Male: Color of head, thorax and first three abdominal segments, and legs uniform pale yellow; abdominal segments IV-VI yellow but usually each with a brown median blotch, triangular in shape, VII and VIII mostly brown. Host: Flowers of *Delostoma dentatum*.

IV. *Intonsa* Group, *Tenuicornis* Series.

109. *tenuicornis* Uzel, 1895, p. 99. — Syn. *maidis* Beach, *nervosa* Uzel. Male: Smaller and lighter in color than female, sometimes almost entirely clear yellow except only antennal segments V-VIII. Europe, Asia, North America; found on grass and many other host plants. The position of, and interval between, interocellar setae is variable.

110. *F. lactea*, new species

Total length 0.91 mm. Antennal segments, length (width) in microns: III 50 (16), IV 43 (16), V 40, VI 50, VII 13, VIII 13. Interval of interocellar setae 16. Major setae, length head, interocellars 40, postoculars 26; prothorax, antero-marginals 43, anterior angles 46, post. ang. inner 63, outer 60; tergum IX, median 133, midlateral 156, lateral 156; tergum X, median 133, midlateral 166. Anterior margin of prothorax with 4 minor setae between antero-marginals. Comb on tergum VIII wanting. Without wings.

Male: Color white as in female; median setae on tergum IX slender, 33, midlaterals placed far anterior to these, 123, the macrochaetae at sides 140 microns.

Specimens taken from samples of soil at St. Augustin, Trinidad.

111. *unicolor* Morgan, 1925, p. 141. — Tenn., Iowa. Syn. *Fr. andropogoni* Mlt. and Andre, 1936, p. 223. Host: *Andropogon furcatus*.

112. *F. frumenti*, new species

Total length 1.39 mm. Antennal segments, length (width) in microns: III 53 (18), IV 50, V 44, VI 56, VII 13, VIII 16. Position of interocellar setae 2, interval 26 microns. Major setae,

length in microns: head, interocellars 40, postoculars 23; prothorax, antero-marginals 33, anterior angles 46, post. ang. inner 56, outer 50; tergum IX, median 100, midlateral 133, lateral 133; tergum X, median 133, midlateral 116. Anterior margin of prothorax with 2 minor setae between antero-marginals. Comb on tergum VIII present. Setae on fore wings: fore vein 18, lower vein 15.

Holotype and 2 paratype females taken on sweet corn at Santiago, Chile, by Dr. Leonidas Ducan, Dec. 3, 1940. (Moulton No. 5357).

113. *F. alba*, new species

Total length 1.38 mm. Antennal segments, length (width) in microns: III 53 (21), IV 46, V 40, VI 56, VII, 13, VIII 16. Position of interocellar setae 2, interval 30 microns. Major setae, length in microns: head, interocellars 53, postoculars 30; prothorax, antero-marginals 36, anterior angles 63, post. ang. inner 83-93, outer 73; tergum IX, median 143, midlateral 166, lateral 166; tergum X, median 173, midlateral 166. Anterior margin of prothorax with 2 minor setae between antero-marginals. Comb on tergum VIII wanting. Setae on fore wings: fore vein 19, lower vein 14.

Holotype (macropterous) and one paratype (brachypterous) intercepted at Brownsville, Texas, from Mexico, on gladiolus.

114. *bratleyi* Watson, 1942, p. 17. — Florida. Host: Tube rose.

V. *Tritici-Cephalica* Group, *Tritici* Series.

a) *Light colored species from North America including Panama, West Indies and Trinidad.*

115. *insignis* Moulton, 1935, p. 170. — Arizona, So. California, Mexico. Host: Citrus foliage.

116. *solidaginis* Hood, 1941, p. 625. — Texas. Host: *Solidago* sp., flowers of golden rod.

117. *F. breviseta*, new species

Total length 1.4 mm. Antennal segments, length (width) in microns: III 50 (20), IV 46 (16), V 36, VI 36, VII 8, VIII 10. Position of interocellar setae 2, interval 30. Major setae, length in microns: head, interocellars 33-40, postoculars 13; prothorax, antero-marginals 26, anterior angles 40, post. ang. inner 60, outer 50; tergum IX, median 93, midlateral 110, lateral 116;

tergum, median 113, midlateral 100. Anterior margin of prothorax with 2 minor setae between antero-marginals. Comb on tergum VIII wanting. Setae on fore wings: fore vein 21, lower vein 18.

Host: Kale and mustard leaves, intercepted at New York from Cuba; holotype and one paratype, females.

118. *citri* Moulton, 1935, p. 170. — California. Host: Citrus foliage; Calexico, Cal.

119. *tritici* Fitch, 1855, p. 385. — Syn. *Euthrips tritici* Hinds, 1902, p. 148. — U. S. east of Rocky Mts., Canada, Mexico. Male: Smaller, lighter in color, especially with abdomen and legs clearer yellow. This species is the most common and generally recognized thrips in this country. It feeds on grasses and a wide variety of other plants.

119a. *tritici* f. *varicornis* Bagnall, 1919, p. 268 (new combination). — Syn. *fulvus* Mlt. 1936, p. 61. Larger and darker in color than the species with abdomen brown and wings washed with brown. This combination of names has been made possible after an examination of paratypic material loaned by the Canadian National Museum. The form *varicornis* is widely distributed in Canada and midwestern United States.

120. *difficilis* Hood, 1925, p. 73. — West Indies, Mexico, South America. Male: Colored as in female; the armature on tergum IX consists of two pairs of short spines, the inner being somewhat longer than the outer.

121. *terminalis* Post. (Manuscript). — Oregon.

b) *Light colored species from outside of North America, Panama, West Indies and Trinidad.*

122. *F. salicis*, new species

Total length 0.85 mm. Antennal segments, length (width) in microns: III 43 (19), IV 40, V 30, VI 43, VII 7, VIII 9. Position of interocellar setae 2, interval 26 microns. Major setae, length in microns: head: interocellars 33, postoculars 20; prothorax, antero-marginals 30, anterior angles 46, post. ang. inner 53, outer 42; tergum IX, median 86, lateral 86; tergum X, median 90, midlateral 76. Anterior margin of prothorax with 2 minor setae between antero-marginals. Comb on tergum VIII wanting. Setae on fore wings: fore vein 16, lower vein 14.

Holotype, female, taken in flowers of *Salix* sp. by R. Takahashi at Kannonzan, Formosa. (No. 2999).

123. *condei* John, 1928, p. 153. — Brazil.

123a. *condei* f. *albicans* John, 1928, p. 154; Moulton, 1933, p. 111. — Paler than the species, with head, legs and abdomen whitish yellow. Numerous specimens taken by the author at São Paulo, Brazil, in 1929, in roses, mango, orange and lemon blossoms.

124. *inca* Hood, 1941, p. 672. — Peru. Male: Colored as in female but with antennae somewhat lighter; sterna 3-7 each with a transverse elliptical sense area.

125. *nubilicornis* Hood, 1941, p. 669. — Peru. Male: Colored in female but with antennae somewhat lighter; sterna 3-7 each with a transverse elliptical sense area. Host: Flowers of *Polygonum* sp.

126. *alticola* Hood, 1941, p. 651. — Peru. Male: Color of body and legs almost uniform yellow; head and thorax of a deeper shade; sterna 3-7 each with a transverse subelliptical sense area. Host: Flowers of "Condor's Egg", a white flowered plant growing at an elevation of about 3000 feet.

127. *F. bicolor*, new species

Total length 1.4 mm. Antennal segments, length (width) in microns: III 53 (20), IV 46, V 40, VI 48, VII 10, VIII 13. Position of interocellar setae 2, interval 26. Major setae, length in microns: head, interocellars 33, postoculars 23; prothorax, antero-marginals 66, anterior angles 70, post. ang. inner 83, outer 66-90; tergum IX, median 113, midlateral 130; tergum X, median 133, midlateral 116. Anterior margin of prothorax with 2 minor setae between antero-marginals. Comb on tergum VIII present. Setae on fore wings: fore vein 19, lower vein 15.

Holotype female taken on *Buddleiya variabilis* in 1933 by E. J. Hambleton at Minas Gerais, Brazil.

128. *extremitata* Hood, 1937, p. 111. — Peru. From flowers in tropical jungle.

c) Dark colored species from North America including Panama, West Indies and Trinidad.

129. *brevicaulis* Hood, 1937, p. 113. — Panama, in flowers of a brush; Trinidad, on leguminosae and tassels of maize.

130. *F. umbrosa*, new species

Total length 1.25 mm. Antennal segments, length (width) in microns: III 60 (20), IV 53, V 40, VI 56, VII 10, VIII 13. Position of interocellar setae 2; interval 26 microns. Major setae, length in microns: head, interocellars 50, postoculars 36; prothorax, antero-marginals 50, anterior angles 56, post. ang. inner 70, outer 63; tergum IX, median 83, midlateral 116; tergum X, median 116, midlateral 110. Comb on tergum VIII present. Setae on fore wings: fore vein 18, lower vein 10-12.

Holotype taken on grass, El Paso County, Texas.

131. *F. fuscipennis*, new species

Total length 1.27 mm. Antennal segments, length (width) in microns: III 46 (22), IV 46, V 36, VI 48, VII 6, VIII 10.

Position of interocellar setae 2, interval 26-28 microns. Major setae, length in microns: head, interocellars 26, postoculars 16; prothorax, antero-marginals 40, anterior angles, 56, post. ang. inner 66, outer 60; tergum IX, median 93, midlateral 103; tergum X, median 123, midlateral 113. Anterior margin of prothorax with 2 minor setae between antero-marginals. Comb on tergum VIII wanting. Setae on fore wings: fore vein 20, lower vein 14.

Male: Mostly brown as in female; tergum IX with short median and long midlateral setae; sterna 3-7 each with sub-elliptical sense area.

Holotype and allotype from Chimaltenango, Guatemala, John R. Johnson, collector; taken on *Tagetes*, sp. Twelve female paratypes from Mexico, intercepted at Brownsville, Texas, taken on chrysanthemum, roses, gardenia and lettuce.

132. *pineticola* Hood, 1941, p. 619. — Cuba. From flowering shrubs among pines.

133. *brunnea* Priesner, 1932, p. 174. — Mexico. Found on grasses and on *Tithonia tubiformis* at Mexico City and Vera Cruz.

134. *F. abnormis*, new species

Total length 1.5 mm. Antennal segments, length (width) in microns: III 50 (20), IV 42, V 38, VI 46, VII 8, VIII 13. Position of interocellar setae 3, interval 18 microns. Major setae, length in microns: head, interocellars 50, postoculars 30; prothorax, antero-marginals 44, anterior angles 56-63, post. ang. inner 73, outer 56-63; tergum IX, median 110, midlateral 106; tergum X, median 96, midlateral 93. Anterior margin of prothorax with 2 minor setae between antero-marginals. Comb on tergum VIII present. Setae on fore wings: fore vein 16, lower vein 13.

Holotype female taken on sagebrush at Zion, Utah.

135. *caseariae* Moulton, 1933, p. 111. — Brazil. Host: *Casearia silvestris*.

136. *amabilis* Priesner, 1925, p. 13. — Surinam. Found on young Cacao leaves at Paramaribo.

VI. *Tritici-Cephalica* Group, *Cephalica* Series.

a) *Light colored species.*

137. *curiosa* Priesner, 1932, p. 175. — Mexico. This species is distinctive in the shape of its third antennal segment; taken in blossoms of *Senecio praecox* and *Baccharis* sp.

138. *cephalica* Crawford, 1910, p. 153. — U. S., Mexico, W. Indies, So. America. Male colored as in female but lighter. The two varieties *projecta* and *bispinosa* are probably synonyms of the species.

138a. *F. cephalica* var. *echinodora*, new variety

See key. Holotype female and 4 female paratypes, allotype male and 3 male paratypes, taken on *Echinodorus* sp. at Santurce, Porto Rico.

139. *melanomata* Williams, 1913, p. 213. — St. Vincent, West Indies. Male: smaller than female.

140. *borinquen* Hood, 1941, p. 675. — Porto Rico. Host: Flowers of *Bidens* sp.

141. *cubensis* Hood, 1925, p. 74. — West Indies, Brazil. Taken originally in flowers of citrus and *Carissa acuminata* in Cuba; also found on numerous hosts in other parts of the West Indies and Brazil.

142. *F. gardeniae*, new species

Total length 1.22 mm. Antennal segments, length (width) in microns: II 50 (23), III 56 (23), IV 46 (20), V 36, VI 44, VII 10, VIII 13. Position of interocellar setae 2, interval 26 microns. Major setae, length in microns: head, interocellars 50, postoculars 26; prothorax, antero-marginals 66, anterior angles 70, post. ang. inner 76, outer 76; tergum IX, median 90, midlateral 113, lateral 110; tergum X, median 123, midlateral 103. Anterior margin of prothorax with 2 minor setae between antero-marginals. Comb on tergum VIII present. Setae on fore wings: fore vein 19-22, lower vein 16.

This species is especially characterized by its long second antennal segment which projects only over pedicel of third segment, the widely spaced microsetae of the comb on tergum VIII and the long series (9) of setae on inner margin of hind tibiae.

Holotype, intercepted on gardenia from Mexico at Brownsville, Texas.

b) *Dark colored species.*

143. *diversa* Hood, 1935, p. 160. — Panama. Taken on a dead branch.

144. *F. inopinata*, new species

Total length 1.15 mm. Antennal segments, length (width) in microns: III 43 (23), IV 40, V 31, VI 46, VII 7, VIII 13. Position of interocellar setae 2, interval 26 microns. Major setae, length in microns: head, interocellars 33, postoculars 16; prothorax, antero-marginals 43, anterior angles 46, post. ang. inner 56, outer 50; tergum IX, median 93, midlateral 113, lateral 106;

tergum X, median 133, midlateral 116. Anterior margin of prothorax with 2 minor setae between antero-marginals. Comb on tergum VIII present. Setae on fore wings: fore vein 18, lower vein 16.

Male colored as in female but lighter, with bases of antennal segments III and IV and all tibiae and tarsi nearly clear yellow.

Species taken in flowers of *Lantana* sp. at Cuernavaca, Mexico, by N. L. H. Krauss.

145. *F. salviae*, new species

Total length 1.47 mm. Antennal segments, length (width) in microns: III 50 (20), IV 50, V 33, VI 46, VII 10, VIII 13. Position of interocellar setae 2, interval 23. Major setae, length in microns: head, inter-ocellars 50, postoculars 40; prothorax, antero-marginals 60, anterior angles 60, post. ang. inner 70, outer 73; tergum IX, median 66, midlateral 103, lateral 120; tergum X, median 123, midlateral 116. Anterior margin of prothorax with 2 minor setae between antero-marginals. Comb on tergum VIII present. Setae on fore wings: fore vein 18, lower vein 14.

Host: *Salvia* sp., taken at Brownsville, Texas.

146. *standleyana* Hood, 1935, p. 161. — Panama. Male: Paler than female, legs yellow, femora lightly shaded with gray on outer surface; sterna 3-7 each with a broad, narrowed-at-middle sense area; tergum IX with two pairs of short and stout dark setae of about equal length, the inner pair placed posterior to outer pair. Host: Flowers of *Clibadium surinamense*, *Conostegia speciosa*.

147. *zeteki* Hood, 1925, p. 75. — Panama. Description incomplete.

148. *parvula* Hood, 1925, p. 75. — Panama. Male: Pale yellow, with a grayish brown blotch at middle of terga 2-8; fore wings almost clear, antennae nearly white, IV and V tipped with gray, VI-VIII gray. Distinctive because of the long third antennal segment with its unusually long pedicel; segment II is raised dorsally at end but not produced over base of third segment. West Indies, Panama; taken on cacao and in various flowers.

Literature Cited.

- Andrewartha, H. V., 1937, A new Species of Thysanoptera of Economic Importance from South Australia. — Roy. Soc. So. Aust., Trans. Proc., vol. 61, 163-165, illus.
- Ayyar, T. V. R., 1928, A Contribution to our Knowledge of the Thysanoptera of India. — Pusa, Bihar, India, pp. 1-316, illus.
- Bagnall, R. S., 1911, Notes on some new and rare Thysanoptera. — Jour. Econ. Ent., vol. 6, 1-11.
- 1919, Brief Descriptions of new Thysanoptera. — Ann. Mag. Nat. Hist. (9), vol. 4, 253-277.
- 1926, Brief Descriptions of new Thysanoptera. — Ann. Mag. Nat. Hist. (9), vol. 18, 98-114.
- 1926, On some new British Thysanoptera. — Ent. Mo. Mag., vol. 62, 279-285.
- 1934, Brief Descriptions of new Thysanoptera. — Ann. Mag. Nat. Hist., (10), vol. 13, 481-498.
- Bailey, S. F., 1933, A Contribution to our Knowledge of the Western Flower Thrips, *Frankliniella californica* Moulton. — Jour. Econ. Ent., vol. 26, 836-840.
- 1935, Thrips as Vectors of Plant Disease. — Jour. Econ. Ent., vol. 28, (4), 678-680.
- 1938, Thrips of Economic Importance in California. — Univ. Cal. Agr. Exp. Sta., Circ. 346, 1-77, illus.
- Beach, Alice M., 1896, Contributions to a Knowledge of the Thripidae of Iowa. — Proc. Iowa Acad. Scien., vol. 3, 214-227.
- Crawford, D. L., 1910, Thysanoptera of Mexico and the South. — Pom. Jour. Ent., vol. 2, 149-170.
- Davidson, J., Bald, J. G., 1930, Description and Bionomics of *Frankliniella insularis* Franklin. — Bull. Ent. Research, London, vol. 21, 365-385, illus.
- Fitch, Asa, 1855, The Wheat Thrips and Three-banded Thrips. — Count. Gent., vol. 6, 385-386.
- Franklin, H. J., 1908, On a Collection of Thysanopterous Insects from Barbados and St. Vincent Islands. — Proc. U. S. Nat. Mus., vol. 33, 715-730, illus.
- Girault, A. A., 1927, Some new Wild Animals from Queensland. — Private Pub., Jan. 26.
- 1928, Some new Hexapods stolen from Authority. — Priv. Pub., May 23, Brisbane, Australia.
- Hinds, W. E., 1902, Contribution to a Monograph of the Insects of the Order Thysanoptera Inhabiting North America. — Proc. U. S. Nat. Mus., vol. 26, 79-242, illus.
- 1905, Euthrips Nicotiana. — Proc. Bio. Soc. Wash., vol. 18, 197-200.
- Hood, J. D., 1912, Descriptions of new North American Thysanoptera. — Proc. Ent. Soc. Wash., vol. 14, 129-160, illus.
- 1914, On the proper generic names of certain Thysanoptera of economic importance. — Proc. Ent. Soc. Wash., vol. 16, 34-44.
- 1915, Descriptions of new American Thysanoptera. — Insec. Insc. Menst., vol. 3, 1-40, illus.
- 1916, Descriptions of new Thysanoptera. — Proc. Bio. Soc. Wash., vol. 29, 109-123, illus.
- 1925, New Neotropical Thysanoptera Collected by C. B. Williams. — Psyche, vol. 32, 48-69.

- 1925, New Species of *Frankliniella* (Thysanoptera). — Bull. Brook. Ent. Soc., vol. 20, 71-82, illus.
- 1927, New Western Thysanoptera. — Proc. Bio. Soc. Wash., vol. 40, 197-204.
- 1935, Eleven new Thripidae (Thysanoptera) from Panama. — Jour. N. Y. Ent. Soc., vol. 43, 143-171, illus.
- 1937, Studies in Neotropical Thysanoptera, III. — Rev. de Ent., Rio de Janeiro, vol. 7, 96-115, illus.
- 1937, Studies in Neotropical Thysanoptera, IV. — Rev. de Ent., vol. 7, 255-296, illus.
- 1937, Studies in Neotropical Thysanoptera, V. — Rev. de Ent., vol. 7, 486-530, illus.
- 1942, A Century of new American Thysanoptera, III. — Rev. de Ent., vol. 12, 547-678, illus.
- Hooker, W. A., 1906, The Tobacco Thrips and Remedies to Prevent White Veins in Wrapper Tobacco. — U.S.D.A., Bur. Ent., Cir. No. 68, illus.
- 1907, The Tobacco Thrips. — U.S.D.A., Bur. Ent., Bull. No. 65, illus.
- John, Oscar, 1928, A New *Frankliniella* (Thysanoptera) from Brazil. — Bull. Ann. Soc. Ent. Belgique, vol. 68, 152-154, illus.
- Karny, H. H., 1910, Neue Thysanopteren der Wiener Gegend. — Mitt. Nat. Ver. Univ., Wien., vol. 2, 41-57, illus.
- 1912, Revision der von Serville Aufgestellten Thysanopteren Genera. — Zool. Anz., vol. 4, 322-344.
- 1920, Die neuen australischen Thysanopteren der Mjöberg-Ausbeute. — Acta. Soc. Ent. Cechoslo., vol. 17, 36-44.
- 1922, Thysanoptera from Siam and Indo-China. — Jor. Siam Soc., vol. 16, 91-153.
- 1925, Die an Tabak auf Java und Sumatra angetroffenen Blasenfüßer (Thysanoptera). — Bull. Deli Proefst. te Medan, Sumatra. No. 23, 3-55, illus.
- 1925, On some Tropical Thysanoptera. — Bull. Ent. Research, London, vol. 16, 125-142, illus.
- 1926, Studies on Indian Thysanoptera. — Agr. Research Inst., Pusa, India, vol. 9, 187-239, illus.
- Kelly, R., Mayne, Bruce, R. J., 1934, The Australian Thrips. — Australian Medical Pub. Co., pp. 1-88, illus.
- Morgan, A. C., 1913, New Genera and Species of Thysanoptera, with Notes on Distribution and Food Plants. — Proc. U. S. Nat. Mus., vol. 46, 1-55, illus.
- 1925, Six new Species of *Frankliniella* and a Key to the American Species. — Can. Ent., vol. 57, 136-147.
- Moulton, Dudley, 1907, A Contribution to our Knowledge of the Thysanoptera of California. — U.S.D.A., Bur. Ent., Tech. Ser., No. 12, III, 39-68, illus.
- 1911, Synopsis Catalogue and Bibliography of North American Thysanoptera with Descriptions of new Species. — U.S.D.A., Bur. Ent., Tech. Ser., No. 21, 1-56, illus.
- 1926, A new Species of *Frankliniella* from Chile. — Rev. Chil. de Hist. Nat., vol. 30, 9-10, illus.
- 1928, Thysanoptera of the Hawaiian Islands. — Proc. Haw. Ent. Soc., vol. 7, 105-134, illus.

- 1928, The Thysanoptera of Japan. New Species, Notes and a List of all known Japanese Species. — Annot. Zool. Jap., Sapporo, Japan, vol. 2, 287-337, illus.
- 1929, New California Thysanoptera. — Pan. Pac. Ent., vol. 5, 125-135.
- 1929, Thysanoptera from India. — Rec. Ind. Mus., Calcutta, vol. 31, 93-100, illus.
- 1930, Thysanoptera from Africa. — Ann. Mag. Nat. Hist., vol. 5, 194-207.
- Thysanoptera from China. Proc. Nat. Hist. Soc. Fukien Christ. Univ., Foochow, China, vol. 3, 1-12. (In collaboration with J. B. Steinweden).
- 1933, The Thysanoptera of South America, II. — Rev. de Ent., vol. 3, 96-133, illus.
- 1935, New California Thysanoptera. — Pan. Pac. Ent., vol. 11, 70-174.
- 1935, Two new Species of Thysanoptera from Argentina and Records of other Species. — Ann. de la S. C. Argentina, vol. 6, 254-257.
- 1936, New American Thysanoptera. — Bull. Brook. Ent. Soc., vol. 31, 61-65.
- 1936, Four new Thysanoptera, with a Preliminary List of the Species occurring in Iowa. — Iowa St. Col. of Sci., vol. 10, 223-234, illus. (With F. Andre).
- 1940, Thysanoptera from New Guinea and New Britain. — Occasional Papers, Bernice P. Bishop Mus., vol. 15, 243-270.
- Pergande, Theodore, 1895, Observations on certain Thripidae. — Insect Life, vol. 7, 390-395.
- Priesner, H. H., 1921, Neue und Wenig Bekannte Thysanopteren der Neotropischen Fauna aus der Sammlung des Berliner Zoologischen Museums. — Deut. Ent. Zs., vol. 3, 187-223, illus.
- 1923, A. Dampfs Aegypten-Ausbeute: Thysanoptera. — Ent. Mitt. Berlin, vol. 12, 115-121, 63-64.
- 1924, Neue Thysanopteren. — Sitz. Akad. Wiss. Wien Mathem.-naturw. Klasse. Abt. I, vol. 133, Heft 10, 527-542.
- 1925, Neue Thysanopteren. — Deutsch. Ent. Zeitschr., 13-28, illus.
- 1925, Thysanopterologica I. — Zool. Jahrb. Band 50, 305-319.
- 1926, Die Thysanopteren Europas. Abt. 2, 246-262. Priv. Pub.
- 1932, Neue Thysanopteren aus Mexico, gesammelt von Prof. Dr. A. Dampf. — Wiener Ent. Zeit., Band 49, Heft 3, 170-185.
- 1932, Neue Thysanopteren aus Mexico, II. — Wiener Ent. Zeit., Band 50, 49-63.
- 1933, Neue Exotische Thysanopteren. — Stylops, vol. 11, 7, 145-156.
- 1935, Thysanopteres des Couches de Potasse du Haut-Rhin. — Bull. Soc. Geol. de France, pp. 471-477. (With F. Quievreux).
- 1936, On some further new Thysanoptera from the Sudan. — Bull. Soc. Roy. Ent. Egypt, 83-104, illus.
- 1938, Thysanopterologica VI. — Konowia, vol. 17, 29-35.
- Schmutz, Karl, 1913, Zur Kenntnis der Thysanopterenfauna von Ceylon. — Sitz. Akad. Wiss. Wien., vol. 22, 991-1089.
- Takahashi, Ryoichi, 1936, Thysanoptera of Formosa. — Phil. Jour. Sci., vol. 60, 427-458.
- Treherne, R. C., 1924, Thysanoptera known to occur in Canada. — Can. Ent., vol. 56, 82-88.
- Trybom, Filip, 1895, Iakttagelser om vissa Blasfotingars (Physapoders) Uppttradande i Grasens Blomstallningar Jamte Nagra Drag ur Slaktet *Phloeothrips* Utvecklingshistoria. — Ent. Tidsk. vol. 15, 157-194.
- Physapoda. — Denksch. Med.-naturw. Band IV, Lief. 1, 147-174.

- Uzel, J., 1895, Monographie der Ordnung Thysanoptera, illus.
 Watson, J. R., 1915, New Thysanoptera from Florida. — Ent. News, vol. 26, 49-52, illus.
 — 1918, Thysanoptera of Florida. — Fla. Bug., vol. 1, 53-55, 65-77.
 — 1919, Additions to the Thysanoptera of Florida. — Fla. Bug., vol. 2, 2-7.
 — 1923, The Proper Name and Distribution of the Florida Flower Thrips. — Fla. Ent., vol. 7, 9-11.
 — 1923, Synopsis and Catalog of the Thysanoptera of North America. — Univ. of Fla., Bull. 168.
 — 1926, Two new Thysanoptera from Cuba. — Fla. Ent., vol. 9, 53-59.
 — 1942, A new *Frankliniella* from Florida. — Fla. Ent., vol. 25, 17-18. (With J. R. Preer).
 — 1942, Two new *Frankliniella* from Mexico. — Fla. Ent., vol. 25, 43-46, illus.
 Williams, C. B., 1913, On two new Species of Thysanoptera from the West Indies. — Jour. Econ. Biol., vol. 8, 209-215, illus.

Index to Species, Varieties and Forms.

(The valid names are in *italics*; the numbers refer to the number of species)

- | | |
|---|--|
| <i>abnormis</i> n. sp. 134 | <i>breviceps</i> Bagnall 70 |
| <i>achaeta</i> Hood 1 | <i>brevisetula</i> n. sp. 117 |
| <i>adadusta</i> n. f. (<i>inutilis</i>) 63 (key) | <i>brevistyla</i> Karny 70 |
| <i>adusta</i> Uzel (<i>intonsa</i> f.) 70 (key) | <i>bruneri</i> Watson (var.) 138 (key) |
| <i>adusta</i> Priesner (<i>oxyura</i> f.) 6 | <i>brunnea</i> Priesner 133 |
| <i>adusta</i> Uzel (<i>tenuicornis</i> f.) 109 (key) | <i>brunnescens</i> Priesner 53 |
| <i>aeschlyi</i> Girault 65 | <i>californica</i> Moulton 53 |
| <i>africana</i> Bagnall 76 | <i>canadensis</i> Morgan 53 |
| <i>alba</i> n. sp. 113 | <i>caseariae</i> Moulton 135 |
| <i>albicans</i> John (f.) 123a | <i>castanea</i> Hood 104 |
| <i>albicornis</i> Uzel (<i>intonsa</i> f.) 70 | <i>celata</i> Priesner (f.) 64 |
| <i>allochroos</i> Moulton 39 | <i>cephalica</i> Crawford 138 |
| <i>alonsoae</i> Hood 98 | <i>cestrum</i> Moulton 79 |
| <i>alticola</i> Hood 126 | <i>citri</i> Moulton 118 |
| <i>amabilis</i> Priesner 136 | <i>citripes</i> Hood 94 |
| <i>ameliae</i> Hood 25 | <i>clara</i> n. f. 119 (key) |
| <i>andrei</i> Moulton 45 | <i>claripennis</i> Morgan 53 |
| <i>andropogoni</i> Mlt. & Andre 111 | <i>clitoriae</i> Moulton 76 |
| <i>anglicana</i> Bagnall 77 76 | <i>cognata</i> Hood 89 |
| <i>annulicornis</i> Priesner 70 (key) | <i>colombiana</i> n. f. 2 |
| <i>annulipes</i> Hood 95 | <i>colombiensis</i> n. f. 58 |
| <i>antennata</i> Hood 83 | <i>compositarum</i> Hood 78 |
| <i>argentinae</i> Moulton 81 | <i>condei</i> John 123 |
| <i>aurea</i> n. sp. 26 | <i>conspicua</i> Moulton 51 |
| <i>auripes</i> Hood 100 | <i>cubensis</i> Hood 141 |
| <i>australis</i> Morgan 75 | <i>curiosa</i> Priesner 137 |
| <i>bagnalliana</i> Hood 47 | <i>curta</i> Hood 5 |
| <i>bicolor</i> n. sp. 127 | <i>curticornis</i> Priesner (f.) 91a |
| <i>bispinosa</i> Morgan (var.) 127 | <i>dahliae</i> n. sp. 49 |
| <i>bondari</i> Hood 32 | <i>dampfi</i> Priesner 40 |
| <i>borinquen</i> Hood 140 | <i>delicatula</i> Bagnall 35 |
| <i>bratleyi</i> Watson 114 | <i>deserti-leonidum</i> Watson 62 |
| <i>brevicaulis</i> Hood 129 | <i>dianthi</i> n. s. 50 |
| | <i>difficilis</i> Hood 120 |

- distinguenda* Bagnall 31
diversa Hood 143
dubia Pr. (*californica* f.) 53 (key)
dubiella Priesner (f.) 63 (key)
echinodori n. var. 138a
exigua Hood 15
extremitata Hood 128
fallaciosa Priesner 93
favoniana Priesner 41
fiebrigi Priesner 73
flavens Moulton 22
floridiana Wat. (*Mycterothrips*)
floridensis Morg. 57
formosae Moulton 71
fortissima Priesner 91
frumenti n. sp. 112
fulvicornis Moulton 7
fulvicornis Uzel (f.) 70
fulvipennis Moulton 80
fulvipes Bagnall 101
fulvus Moulton 119a
fusca Hinds 44
fuscicauda Hood 42
fuscicornis n. nom. 7
fuscipennis n. sp. 131
gardeniae n. sp. 142
gemina Bagnall 27
genuina Hood 17
gilmorei Morgan 15
gossypii Shiraki 37
gossypii Morgan 14
gossypiana Hood 14
grandis Moulton 58
helianthi Moulton 28
inca Hood 124
ingentissima Priesner 96
inopinata n. sp. 144
inornata Moulton 19
insignis Moulton 115
insularis Franklin 90
insularis Davidson and Bald 76
interocellaris Karny (f.) 40b
intonsa Trybom 70
inutilis Priesner 63
ipomoeae n. sp. 20
kellyana (Bagn.) 102
lactea n. sp. 110
livida Takahashi 30
longispinosa Moulton 84
luminosa n. f. 2
lycopersici Andrewartha 76
maculata Priesner (f.) 119 (key)
maculipes Hood 11
maidis Beach 109
maritima Priesner (var.) 70 (key)
masoni Watson (var.) 138 (key)
melanommata Williams 139
melanura Priesner (f.) 33 (key)
minor n. f. 120 (key)
minuta Moulton 2
molesta Priesner 18
moultoni Hood 53
nana Priesner (f.) 40
nervosa Uzel 109
nicotiana Hinds 44
nigra n. var. 76a
nigricauda Hood 43
nigricornis Schmutz (*Taeniothrips*)
nigripes Girault 76
nigriventris Uzel 68
nigropilosa Uzel (f.) 70 (key)
nubila Treherne 57
nubilicornis Hood 125
obscura Moulton 55
obscuricornis Schmutz (*Taeniothrips*)
occidentalis Pergande 24
oligocaenica Priesner (fossil)
ononidis Bagnall 34
oxyura Bagnall 6
pallida Uzel 33
panamensis Hood 59
paraguayensis Pr. 6
parvifossis Priesner (f.) 93a
parvula Hood 148
paucispinosa Moulton 76
pearsalli Moulton 1
pembertonii Moulton 21
persetosae Karny 67
peruviana Hood 74
phaeaner Hood 88
pineticola Hood 132
pontederiae Watson & Preer 61
priesneri Bagnall 36
projecta Watson (var.) 138
pseudotritici Pr. 53a
pulchella Hood 60
regalis Hood 107
regia Hood 106
regina Hood 108
reticulata Craw. 90
rex Hood 105
rodeos Moulton 38
rostrata Priesner 16
rufula K  ler (var. of *intonsa*)
runneri Morgan 13
salicis n. sp. 122
salviae n. sp. 145
schultzei Trybom 76
serrata Moulton 10
setipes Bagnall 87
setosa Craw. 2

- simplex* Priesner 64
solidaginis Hood 116
speciosa Moulton 85
spinosa Moulton 22
standleyana Hood 146
stylosa Hood 58
sulfuripes Hood 92
sulphurea Schmutz 21
syringae n. sp. 52
tabacicola Karny 72
tenuicornis Uzel 109
terminalis Post 121
tolucensis Watson 54
trehernei Morgan (f.) 53a 27
tricolor Moulton (f.) 71 (key)
tridacana Hood 48
trinidadensis Hood 23
trisetosa Hood 9
tristis Priesner 69
tritici Fitch 119
trybomi Karny 97 76
tuberosi Moulton 86
tympanona Hood 4
umbrosa n. sp. 130
unicolor Morgan 111
vaccinii Morgan 12
varicornis Bagnall (f.) 119c
varipes Moulton 99
varitibia n. sp. 8
venusta Moulton 46
vernoniae Priesner 31
vicina Karny 66
vicinii Karny 66
vitata Schmutz (Taeniothrips)
watsoni n. sp. 3
williamsi Hood 22
xanthaner Hood 82
xanthomelaena Hood 103
yuccae Moulton 29
zeteki Hood 147

Uebersicht der Bombyliiden-Gattung *Lyophlaeba* Rond. (Diptera), Nebst einer Bestimmungstabelle.

Von Prof. Dr. S. J. Paramonow, Canberra, Australien.

In seiner sehr interessanten und fuer die Erkenntnis einer grossen Lomatiinen-Gruppe wichtigen Arbeit hat F. W. Edwards (Encycl. Ent., Diptera, VII, 1934, 81-112) eine neue systematische Gruppierung und Benennung der Gattungen der *Comptosia*-Gruppe vorgeschlagen. Wir werden hier nur eine Gattung: *Lyophlaeba* Rondani (*Macrocondyla* Rond. nach der Nomenklatur von Edwards) kritisch betrachten.

Es entstehen drei Fragen: ueber den Umfang, ueber die Benennung und ueber die systematische Stellung dieser Gattung. Der Umfang dieser Gattung, wie er von mir (1931, Trav. Mus. Zool. Kiew, N. 11) und Edwards (1934) angenommen wurde, ist faktisch fast gleich, obgleich dieses Resultat zum Teil zufaellig ist.

Unter dem Namen *Lyophlaeba* habe ich (1931) solche *Comptosia*-Arten angenommen, welche 4 Submarginalzellen haben. Obgleich die Anzahl der Submarginalzellen, wie ich schon 1931 gezeigt habe, keine besonders wichtige Rolle spielt, vereinigen sich die nahe verwandten Formen unter diesem Namen ziemlich natuerlicherweise; doch gibt es manche Ausnahmen. Wie F. W. Edwards richtig bemerkte, zaehlte ich zwei mir in der Natur nicht bekannte Arten (*infumata* und *canescens*), die nur 3 Submarginalzellen haben, unrichtig den Arten mit 4 Submarginalzellen zu; doch sind sie echte *Lyophlaeba*-Arten. Andererseits gibt es zwei *Comptosia*-Arten (*C. plena* Walk. und *C. vittata* Edw.), die 4 Submarginalzellen besitzen.

Nach den Untersuchungen von Edwards, welcher ein neues wichtiges Unterschiedsmerkmal gefunden hat, koennen wir jedoch die Gattung *Lyophlaeba* von anderen Gattungen der *Comptosia*-Gruppe leicht durch die behaarten Metapleuren unterscheiden. Es gibt auch ein geographisches Unterschiedsmerkmal: saemtliche bis jetzt bekannte Arten der Gattung *Lyophlaeba* stammen von Sued-Amerika, und keine einzige *Comptosia*-Art ist fuer diese Gegend bis jetzt angefuehrt.

Die Gattungen *Comptosia* Macq. und *Lyophlaeba* Rond. unterscheiden sich also folgenderweise: die Gattung *Comptosia*, die nur australische Arten enthaelt, hat nackte Metapleuren und in der Regel 2 oder 3 Submarginalzellen; nur zwei *Comptosia*-Arten haben 4 Submarginalzellen (*C. plena* Walk. hat eine

ausserst schmale und lange Axillar- sowie auch Analzelle, ihre 1. Submarginalzelle ist in 3 Zellen geteilt, waehrend alle anderen *Comptosia*- und *Lyophlaeba*-Arten mit 4 Submarginalzellen beide Submarginalzellen in 2 Teile geteilt haben; *C. vittata* Edw. unterscheidet sich von den *Lyophlaeba*-Arten ausser durch die nackten Metapleuren auch durch die Fluegelzeichnung; die Fluegel sind schwarz mit einer glashellen Spitze, ein Merkmal, welches fuer viele *Comptosia*-Arten sehr charakteristisch ist, waehrend die Arten von *Lyophlaeba* niemals diese Zeichnung haben; in der Regel haben die Fluegel in der Mitte einen deutlichen glashellen Querstreifen und eine glashelle Spitze). Die Gattung *Lyophlaeba*, die nur sued-amerikanische Arten enthaelt, hat behaarte Metapleuren und in der Regel 4 Submarginalzellen, selten 3 und niemals 2.

Gehen wir jetzt zur Frage der Benennung dieser Gruppe ueber. F. W. E d w a r d s braucht fuer die Gattung *Lyophlaeba* den Namen *Macrocondyla* und betrachtet erstere als Untergattung der Gattung *Macrocondyla*. Wir koennen mit einer solchen Nomenklatur nicht einverstanden sein, da sie gegen die Nomenklaturregeln verstoesst. R o n d a n i hat die Gattung *Lyophlaeba*, mit der typischen Art *L. lugubris*, sowohl in der Bestimmungstabelle als auch bei den Beschreibungen etwas frueher angefuehrt als *Macrocondyla*. Infolgedessen hat der Name *Lyophlaeba* Rondani Prioritaetsrecht und die Gattung *Macrocondyla* Rondani koennte als Untergattung von *Lyophlaeba*, doch nicht umgekehrt, betrachtet werden. Da aber in den letzten Jahren vorgeschlagen wurde, die Kategorie der Untergattung im allgemeinen wegzulassen (s. Verh. VII Kongr. f. Entom. Berlin, 1939), muessen wir *Macrocondyla* unter den Synonymen von *Lyophlaeba* unterbringen.

Die Erklaerung von E d w a r d s : "I prefer instead to adopt the name *Macrocondyla* for them not because this name precedes *Lyophlaeba* in Rondani's publication, but because I define the genus differently and because the only generic character given by Paramonow (presence of four posterior cells) is of no diagnostic value" — scheint uns ungenuegend begruendet. Ganz unabhaengig davon ob R o n d a n i, P a r a m o n o w, E d w a r d s oder ein anderer Autor seine Gattungen gut und ausfuehrlich charakterisiert hat, kann nicht ein spaeterer Autor die Namen der Gattungen oder die typischen Arten derselben wechseln. Wenn E d w a r d s den Rahmen der Gattung *Lyophlaeba* etwas anders annimmt als R o n d a n i, so gibt ihm das

kein Recht, den aeltesten Namen nicht zu gebrauchen. Wenn ich in meiner Arbeit nur ein Gattungsmerkmal erwaehte, so geschah das weil Rondani die Gattung *Lyophlaeba* schon ziemlich ausfuehrlich beschrieben und die typische Art angegeben hat.

Ausser *Macrocondyla* hat die Gattung *Lyophlaeba* noch ein anders Synonym: *Tritoneura* Schin. 1867. Nebenbei sei bemerkt, dass die Gattung *Comptosia* Macq. 1840 nach meinen letzten Untersuchungen folgende Synonyme hat: *Neuria* Newman, 1841, *Alyosia* Rond. 1863, *Aleucosia* Edw. 1934.

Die Gattung *Ligyra*, mit der typischen Art *L. bombyliiformis* Macleay, welche 1841 errichtet wurde, hat Prioritaetsrecht ueber *Hyperalonia* Rond. 1863.

Was die Gattung *Ylasoia* Speiser 1920 betrifft, so muss ich meine fruehere Meinung (Eos, 1940) wechseln; sie unterscheidet sich ziemlich gut von der Gattung *Comptosia* und stellt eine besondere Gattung dar.

Was die systematische Stellung der Gattung *Lyophlaeba* unter den anderen Lomatiinen-Gattungen betrifft, so glaube ich, dass die Anwesenheit vieler Submarginalzellen, die grossen Krueemmungen der Laengsadern an der Fluegelspitze die primitive Stellung derselben beweisen, d. h. wir haben folgende Reihe: *Lyophlaeba*, *Comptosia*, *Lomatia*, *Oncodocera*, *Anisotamia* - (mit Auslassung der kleineren Gattungen wie *Oncodosia* usw.)

Beschreibungen, Kritische Bemerkungen und Zusaetze.

1. *Lyophlaeba lugubris* Rond.

Rondani, Archivio per la Zoolog., III, 1863, 55; Schin., Novara Reise, Dipt., 1868, -134 (*Tritoneura*). Paramonow, Trav. Mus. Zool. N. 11, 1931, 37; Edwards, Diptera, VII, 1934, 110; Paramonow, Eos, XIII, 1940, 38.
Syn.: *lugubris* Philippi, Verhandl. zool.-bot. Ges. Wien, XV, 1865, 678.

Ich fuehre meine Beschreibung (1931) woertlich an:

"Die Grundfarbe des Koerpers schwarz, der Mundrand gelb. Der Bau der Mundoeffnung und des Ruessels wie bei *L. boliviana*. Der Stirnstreifen etwas schmaeler als bei *L. boliviana*; beim Weibchen ist er deutlich breiter als der Ozellenhoecker, doch ist der Scheitel des Weibchens schmal, hoechstens $1/7$ der Kopfbreite einnehmend. Die Stirn und das Gesicht des Maennchens sind schwarz und weiss behaart, grau bestaeubt, beim Weibchen ist das Gesicht nur weiss behaart. Der Hinterkopf ist weissgelblich bestaeubt und kurz behaart. Fuehler schwarz, schwarz behaart. Das 1. Glied verhaeltnismaessig (zu *L. boliviana*) kurz und schmal. Das 3. Glied ist nur $1\frac{1}{2}$ mal laenger als die beiden

ersten zusammen, seine Spitze wie bei *L. boliviana*. Die Zeichnung, Behaarung, Beborstung und Befilzung wie bei *L. boliviana*, doch sind die Borsten kraeftiger, ausnahmslos schwarz. Die Borsten auf den Mesopleuren und Metapleuren sind dicht mit weissen Haaren gemischt (bei *L. boliviana* fehlen hier die Borsten gaenzlich, nur gelbliche Haare sind vorhanden). Behaarung weisslicher. Thorakalschueppchen dicht und lang braeunlich behaart (bei *L. boliviana* ist es gelblich behaart). Schwinger und Beine wie bei *L. boliviana*. Der Fluegel gleicht demselben von *L. boliviana* sehr, doch ist die 2. Laengsader an der Spitze aeusserst stark ausgebogen (beide Seiten der Kruemmung parallel liegend), ferner ist die dunkle Zeichnung dichter, schwarz, nicht braeunlich-schwarz und mehr entwickelt, waehrend bei *L. boliviana* die schwarze Umsaeumung der Adern einen geringeren Teil der Zellen einnimmt; bei der betreffenden Art nimmt sie den groesseren Teil ein und den ganzen Fluegel kann man fast schwarz nennen.

“Der Hinterleib und seine Behaarung und Befilzung gleicht dem von *L. boliviana* sehr, doch ist der Hinterleib hier unten schwarz behaart und von den hellen Filzstreifen findet man nur eine Spur.

Koerperlaenge 14 mm., Fluegellaenge 14,5 mm.

♀ ♀, 6-12. XII. 1917, Rio Blanco, Chile, Herbst leg., 1 ♂, XI, 1903, Rencagua, Chile, Herbst leg.”

Man kann hinzufuegen, dass das 1. Fuehlerglied an der Spitze auf der Innenseite einen Haarbueschel traegt. Der Stirnstreifen des Maennchens ist fast so breit wie die vordere Ozele. Oben ist die Stirn schwarz beborstet, unten mit gelblichen Borstenhaaren bedeckt. Die groesseren Borsten vor der Fluegelbasis sind gelb, die kleineren wie beim Weibchen schwarz. Der Bauch ist laengs dem Hinterrand der Sternite gelb umsaeumt.

In British Museum habe ich 4 Maennchen und 1 Weibchen, die von Edwards erwahnt sind, gesehen. Alle diese Exemplare haben einen gut entwickelten gelbbeschuppten Mittelstreifen auf den Tergiten. Die Unterseite des Hinterleibs ist hier dicht mit anliegenden goldgelben Filzhaaren bedeckt; ausserdem sind auch viele laengere, doch spaerlichere schwarze Haare vorhanden. Es ist die Moeglichkeit nicht ausgeschlossen, dass wir es hier mit einer neuen Form zu tun haben.

2. *Lyophlaeba boliviana* Param. ♂.

Paramonow, Trav. Mus. Zool. Kiew, N. 11, 1931, 32; Edwards, Dipt. VII, 1934, 110.

Das einzige Exemplar dieser Art, Typus des Maennchens, wurde waehrend des Krieges vernichtet. Ich fuehre die Beschreibung woertlich an:

“Die Grundfarbe des Koerpers ist fast schwarz, der Mundrand gelblich. Die Mundhoehle reicht bis zur Fuehlerbasis. Ruessel lang, fast um die Kopflaenge aus der Mundhoehle hervorragend. Die Augen durch einen schmalen Streifen getrennt, der fast der Haelfte des Ozellenhoeckers gleich ist. Stirn und Gesicht lang weiss behaart. Ozellenhoecker schwarz behaart. Hinterkopf (wie die Stirn und das Gesicht) graulich gepudert, mit kurzen anliegenden gelblichen Haaren. Das 1. Fuehlerglied ziemlich dick, beinahe so breit wie der Scheitel, fast zylindrisch; das zweite ganz klein, fast 4 mal kuerzer und 2 mal schmaeler als das 1., beide schwarzhaarig; das 3. sehr lang, fast $2\frac{1}{2}$ mal laenger als die beiden ersten zusammen; vor der Spitze hat es einen spitzen Auswuchs.

Thoraxruecken in der Grundfarbe schwarzbraun, mit drei etwas helleren schmalen Laengsstreifen. Der Vorder- und Seitenrand mit langen gelben Haaren, der Ruecken selbst mit schwarzen, borstenaehnlichen Haaren besetzt; die echten Borsten des Thoraxrueckens und Schildchens sind gelb. Ausserdem ist der Thoraxruecken samt Schildchen mit einem gelben, anliegenden Filz bedeckt. Die Seiten des Thorax oben lang gelblich behaart, unten kahl. Fluegel sehr lang, saemtliche Adern braeunlich umsaeumt, die Zwischenraeume sind nicht ganz durchsichtig. Fluegelgeaeder fast wie bei den anderen Arten, doch ist die 2. Laengsader am Ende nicht so stark geschwungen: beide Seiten der vorspitzigen Kruemmung sind nicht parallel, sondern stark divergierend und die Spitze selbst ist nur wenig zur Fluegelbasis gerichtet. Schwinger braeunlich, mit gelbem Knopf. Beine schwarzbraun, schwarz beborstet und gelb beschuppt. Pulvilli rudimentaer.

Der Hinterleib ist unten spaerlich, doch lang gelblich behaart, oben befinden sich ebensolche Haare, doch an den Seiten sind viele schwarze beigemischt. Das letzte Segment und Hypopygium sind schwarz behaart. Die Seiten des 1. Segments sind lang gelblich behaart. Auf der Mitte und an den Seiten des Hinterleibs befinden sich drei deutliche gelbliche Filzstreifen.

Koerperlaenge 10 mm., Fluegellaenge 12 mm.

1 ♂, 17.III.1914, Oruro, Bolivia. R. Paessler leg. Typus in der Sammlung des Hamburger Museums.”

Beide Arten: *L. lugubris* Rond. und *L. boliviana* Param. bilden eine kleine Gruppe dieser Gattung, welche sich leicht durch die rudimentaeren Pulvillen, die Anwesenheit von 4 Submarginalzellen und ungebaenderte Fluegel unterscheiden laesst.

3. *Lyophlaeba koslowskyi* Edw. ♂, ♀.

Edwards, Diptera of Patagonia and South Chile, V, fasc. 2, 1930, 171 (*Lygira*) text-fig. 10; Diptera, VII, 1934, 108; Paramonow, Eos, XIII, 1940, 36.

Die Original-Beschreibung von Edwards führe ich woertlich an:

"Black, with some white hair on body; scutellum and venter reddish; legs brownish; wings with conspicuous markings as shown in figure.

♀. — Length of body, 11 mm.; wing 11 mm. Head black, greyer round orbits. Front with black bristly hair above, but with dense white hair or hairlike scales immediately above antennae. Face with white hair. Antennae entirely black and black-haired; first segment very stout, much more so than in *L. lugubris* Phil.; third segment about as long as first two together, only slightly tapering towards tip, with minute terminal style. Proboscis black, reaching distinctly beyond tip of antenna.

Thorax mainly black; shoulders, most of scutellum, and area above wings-base reddish; dorsum mainly denuded in type, but showing some black hair; shoulders and pleurae with white hair.

Abdomen black above; posterior lateral corners of tergites and whole venter reddish. In type the vestiture of the abdomen is almost completely lost, but there are traces of white decumbent hair on the first segment.

Legs brownish, clothed with small pale yellowish scales and black bristles; coxae and tarsi darker.

Wings with the anterior half dark brown except at tip; posterior border more narrowly darkened; darker brown areas over cross-veins; remainder surface milky-white; veins all dark. Halteres with brownish stem, knob largely yellow.

Holotype, ♀, Lago Blanco, Chubut, Patagonia (J. Koslowsky).

In its wing-markings this new species seems very distinct from all the Chilean species of *Comptosia* described by Philippi. *Ligyra lugubris* (Phil.), the only other South American species of this genus, has the body and wings almost completely black. On the other hand the Australian *Comptosia* (*Alyosia*) *plana* (Walk.) has wing-markings remarkably like *L. koslowskyi*, though it has only two (or rarely three) submarginal cells, and a broader abdomen."

Ich habe den Typus in British Museum gesehen und folgendes notiert: "Typus ist ziemlich stark beschadigt. Schildchen roetlich.

Die groesseren Borsten des Thoraxrueckens sind roetlich, die kleineren schwarz. Schwinger gelb. Beine roetlich."

Die Beschreibung von Edwards (1934) enthaelt noch folgende Einzelheiten: das 1. Fuehlerglied ist nicht verdickt an der Spitze auf der Innenseite, hier traegt es subventral einen deutlichen Bueschel von schwarzen Borstenhaaren. Die Ader r_1 (die 1. Laengsader) distal mit zahlreichen Macrotrichien.

♂. — Ich habe ein Exemplar von Chile untersucht, das fast in allen Merkmalen mit der Beschreibung und Abbildung von Edwards uebereinstimmt (Koerperlaenge 13, Fluegellaenge 13 mm.). Die kleinen Abweichungen halte ich fuer Geschlechts- und Individualunterschiede. Mundhoehlenrand und Wangen gelb. Die sehr charakteristische Fluegelzeichnung, sowie das Geaeder, stimmen mit der Abbildung von Edwards fast ganz ueberein, auch befindet sich hier ein kurzer Aderstumpf auf dem oberen Ast der 3. Laengsader, der gegen die Fluegelbasis gerichtet ist. Ich habe nur folgende Unterschiede gefunden: ein durchsichtiger, kleiner, keilfoermiger Strich auf der Spitze der unteren Basalzelle (unten) fehlt hier gaenzlich. Die schwarzbraune Faerbung laengs den die 2., 3. und 4. Hinterrandzelle abtrennenden Adern ist staerker entwickelt; die Spitze der 1. Hinterrandzelle ist deutlich gebraeunt; infolgedessen entsteht eine deutliche Querbinde nahe der Spitze des Fluegels, die bei den meisten chilenischen Arten sehr gut ausgepraegt ist; hier ist sie viel schwaecher entwickelt. Schematisch ist der Fluegel folgenderweise gezeichnet: die ganze vordere Haelfte vom Vorderrand fast bis zur geraden Linie von der Basis der Axillarzelle zur Gabelung der 3. Laengsader ist dunkelbraun; die Spitze des Fluegels und die Hinterhaelfte ist durchsichtig, doch ist die Spitze der Analzelle, der Discoidalzelle, der 1. Hinterrandzelle und fast die ganze 3. Hinterrandzelle braun gefaerbt.

Die Augen sind durch einen aeusserst schmalen Streifen getrennt. Das 1. Fuehlerglied ist schmutzig gelb, oben ueberwiegend schwarz beborstet, unten ueberwiegend fast weisslich behaart (Edwards nennt jedoch das 1. Fuehlerglied "entirely black").

Der Thoraxruecken ist schwarz abstehend behaart und beborstet, doch sind die groesseren Borsten vor der Fluegelbasis roetlich. Ausserdem ist der Thoraxruecken gelblich anliegend befilzt; aber hinten befindet sich vor dem Schildchen ein grosser, dreieckiger, weissbefilzter Fleck; die Seiten des Thoraxrueckens sind auch weissbefilzt; auf dem Vorderrand befinden sich zwei

dicht nebeneinander stehende weissbefilzte Flecke, zwischen denen (etwas nach hinten) sich eine schmale weissbefilzte Strieme befindet, welche sich bis zum oben erwachten grossen dreieckigen, vor dem Schildchen liegenden, Fleck erstreckt.

Der Hinterleib ist unten dicht weiss befilzt und spaerlich schwarz behaart. Oben ist er schwarz abstehend behaart und gelb anliegend befilzt, an den Seiten und in der Mitte weiss befilzt; infolgedessen entstehen drei ziemlich deutliche weisse Laengsstreifen. Der mittlere ist ziemlich breit, parallelseitig und verlaeuft vom 2. bis 8. Segment inclusive. Der Hinterrand des 1. Segments ist schmal weiss befilzt.

1 ♂, Neuquen, Chile, 1907. Dr. Adolf Lendl leg. (Paramonow, 1940).

4. *Lyophlaeba setosa* Param. ♀.

Paramonow, Eos, XIII, 1940, 32.

Diese Art steht augenscheinlich der *L. koslowskyi* ziemlich nahe, jedenfalls gleichen die charakteristischen Fluegelzeichnungen beider Arten einander sehr. Ich fuehre meine Beschreibung woertlich an:

“Diese Art ist leicht zu erkennen. In der ersten Hinterandzelle befindet sich (wie bei *L. bifasciata* oder *L. argentinae*) eine ueberzaehlige Querader. Fuehler ganz schwarz; der durchsichtige Mittelstreifen des Fluegels beginnt nicht an der ersten Laengsader, sondern an der 4. etc.

Die Grundfarbe des Koerpers ist schwarz, die des Schildchens, der Mundhoehle gelb oder gelbroetlich. Der Scheitel ist fast 3 mal breiter als der Ozellenhoecker und nimmt fast 1/5 der Kopfbreite ein. Die zwei oberen Drittel der Stirn sind schwarz behaart, das untere weissgelblich. Der ganze Kopf ist dicht grau bestaeubt. Gesicht weiss behaart. Fuehler schwarz, schwarz behaart. Das 3. Fuehlerglied ist aeusserst schmal, ganz zylindrisch, merklich laenger als die beiden ersten zusammen. Ocellenhoecker sehr kurz schwarz behaart.

Der Thoraxruecken ist anliegend gelbroetlich befilzt (an den Seiten weiss befilzt); kurz schwarz abstehend behaart; ausserdem findet man an den Seiten und am Vorderrand ziemlich zahlreiche schwarze borstenaehnliche Haare und echte schwarze Borsten. Wenn der Ruecken abgerieben ist, sieht man drei wenig bemerkbare, schmale, graue Laengsstreifen. Schildchen weiss befilzt, kurz und spaerlich schwarz behaart und laengs dem Aussenrand

schwarz beborstet. Die Brustseiten sind ziemlich lang und dicht weisslich behaart; auf den Mesopleuren befinden sich ausserdem zahlreiche schwarze borstenaehnliche Haare. Beine dunkelbraun, fast schwarz, der Schenkel nur sehr schwach gelblich durchscheinend. Tarsen sehr lang, laenger als die Schienen, ganz schwarz. Die Vorderseite saemtlicher Schenkel traegt starke schwarze Borsten (besonders kraeftig auf den mittleren Schenkeln). Schwinger weisslich.

Die Fluegelzeichnung unterscheidet sich von der anderer Arten hauptsaechlich dadurch, dass der durchsichtige Mittelstreifen nicht von der 1. oder 2. Laengsader abgeht, sondern von der 4. Laengsader. Der dunkle Querstreifen nach aussen von der oben genannten hellen ist schwach ausgepraegt (sowie der helle); infolgedessen weicht die Fluegelzeichnung von der von *L. bifasciata* stark ab. Der durchsichtige Teil des Fluegels ist nicht wasserklar, sondern deutlich graulich beraucht. Die dunkelbraune Faerbung hat etwa folgende Grenzen: sie nimmt die ganze Flaechе vom Vorderrand bis zur 4. Laengsader und von der Fluegelbasis bis zur Gabelader ein. Die untere Basalzelle ist auch ganz mit dunkler Farbe ausgefuellt. Axillar- und Analzelle sind graulich getruebt, nur an der Basis und an der Spitze findet man eine Spur von dunklerer Faerbung; auch die sie umgrenzenden Adern sind aeusserst schmal gelb umsaeumt. Die Discoidalzelle und 4. Hinterrandzelle sind glasartig, nur an der Basis und die erstere auch an der Spitze sehr schmal verdunkelt. An der basalen oberen Ecke der 3. Hinterrandzelle befindet sich ein deutlicher dunkler Fleck. Die 2. und 3. Hinterrandzelle sind durchsichtig, doch sind die Basis der ersteren und die Seiten der zweiten gelbbraun umsaeumt. Die 1. Hinterrandzelle ist an der Basis gebraeunt und laengs der 3. Laengsader ebenso schmal bis zur ueberzaehligен Querader umsaeumt. Die letzte ist beiderseits braeunlich umsaeumt. Die Marginalzelle ist ganz ausgefuellt, fast bis zur Stelle, wo die 2. Laengsader sich nach unten zu kruemmen anfaengt; die 1. Submarginalzelle ist fast wie die Marginalzelle gefaerbt, doch befindet sich an der Spitze der Zeichnung ein schmaeler, glasheller Auswuchs, der gegen die Basis des Fluegels gerichtet ist, oder er ist nur angedeutet. Die Basis der ersten Abteilung der 2. Submarginalzelle ist gebraeunt; die kleine Ader, welche diese Zelle in zwei Teile trennt, ist beiderseits dunkel umsaeumt. Das Geaeder ist sehr charakteristisch. Die erste Hinterrandzelle ist an der Spitze merklich verengt und durch eine ueberzaehlige Querader in zwei Teile geteilt; dieselbe liegt etwas

hinter der Mitte der 2. Hinterrandzelle. Die zweite Hinterrandzelle ist der dritten an der Spitze gleich (bei *L. bifasciata* und *parvifasciata* ist die erstere deutlich breiter). Die 2. Laengsader ist an der Spitze stark gekruehmt, doch nicht so tief wie bei *L. bifasciata* etc. Der Vorderrand des Fluegels ist an der Einmuendungsstelle der 1. Laengsader nicht deutlich nach vorn gewoelbt, wie dies beim Maennchen von *L. bifasciata* der Fall ist. Die Querader, welche die 1. Submarginalzelle teilt, liegt deutlich hinter der Mitte des basalen Teils der 2. Submarginalzelle.

Hinterleib unten weiss befilzt und spaerlich schwarz behaart (gegen die Spitze dichter). Oben ist er dunkel, an den Seiten weiss befilzt und an den hinteren Ecken des 1.-4. Segments dicht (wie Bueschel bildend) borstenaehnlich schwarz behaart; auf den 3 letzten Segmenten sind die schwarzen Haare kuerzer und duenner. Ausserdem sind die 4 ersten Segmente braeunlich bestaeubt; doch ist das wenig bemerkbar. Auf der Mitte der Segmente laengs dem Hinterrand befinden sich weisse Bueschel, die gegen die Spitze des Hinterleibs allmaehlich kleiner werden. Die Oberseite des Hinterleibs ist spaerlich schwarz behaart.

Koerperlaenge bis 20 mm., Fluegellaenge bis 22 mm.

2 ♀ ♀, Chile. Typus in der Sammlung des Zoolog. Museums in Muenchen."

5. *Lyophlaeba manca* Edw. ♂, ♀.

Edwards, Diptera, VII, 1934, 107.

Diese Art hat Edwards folgenderweise beschrieben:

Much resembles *landbecki*, but differs from that and all other species of the *bifasciata* group in having only three submarginal cells. First antennal segment reddish, but with rather longer and denser black hair above than in preceding species. Third antennal segment very slender on distal two-thirds. Hair above base of antennae creamy. Proboscis long, as in *bifasciata*. Thorax with brownish and white pubescence, latter forming two indefinite stripes (not three as in *landbecki*) and a pair of patches in front of scutellum. Scutellum black, its pubescence brown above, white round margin. Abdomen with the usual whitish pubescence (not clear white in this species) on sides of tergites and forming a more or less continuous median stripe. Legs reddish. Wings with markings somewhat as in *bifasciata*, but the two dark bands chiefly occurring on upper half of wing; and vein *An* dark-bordered on distal half.

4 ♂, 2 ♀, stood in Bigot's collection under the name *M. landbecki*: type ♂ 1 ♀ presented to the British Museum by Mr. J. E. Collin. Also 1 ♂, in the Vienna Museum, determined as *bifasciata* by Schiner.

Ich habe den Typus in British Museum untersucht. Typus: patria ignota. Pulvilli schwach entwickelt. Die Stirn und das Gesicht sind fast weiss behaart. Die Beruehrungslinie der Augen ist ein wenig laenger als das Ozellendreieck; die Strieme, welche die Augen voneinander trennt, ist fast so breit wie die vordere Ozelle. Die Borsten des Thoraxrueckens sind bleichroetlich, die laengeren abstehenden Haare auf demselben sind schwarz, die kuerzeren, mehr anliegenden Haare bilden 3 Laengsstriemen; an den Seiten des Thoraxrueckens befinden sich reinweisse Haare; ebensolche Haare bilden vor dem Schildchen 2 deutliche Makeln, ebenso befinden sich weisse Haare vor der Fluegelbasis (etwas nach hinten); die erste Haelfte des Rueckens traegt zwei schmale Laengsstreifen ebensolcher Haare.

Der Hinterleib traegt, wie in der Regel, 3 deutliche weisse Laengsstreifen; die seitlichen bestehen aus dreieckigen Flecken. Auf der Oberseite des Hinterleibs befinden sich auch ziemlich zahlreiche, doch abstehende und wenig bemerkbare schwarze Haare. Schwinger gelbroetlich.

Ich bin nicht ganz ueberzeugt, dass E d w a r d s *L. landbecki* richtig interpretiert hat, aber einstweilen wird es besser sein, seine Interpretation anzunehmen.

6. *Lyophlaeba pictinervis* Rond. ♂, ♀.

Rondani, Archivio per la Zoolog. III, 1863, 56; Edwards, Diptera, VII, 1934, 109. *?vulgatis* Philippi, Verhandl. zool.-bot. Ges. Wien, XV, 1865, 677; Paramonow, Trav. Mus. Zool. Kiew, N. II, 1931, 39.

Die Beschreibung von R o n d a n i lautet: "Long. mill. 10. Fusca, grisei et albidii pilosa. Caput cinereo-albescens, pilisque albis munitum. Thoracis dorsum, cum scutello, griseo-lutescente hirtum, pleuris albo-pilosis. Abdomen griseo-lutescente pilosum, vitta longitudinali et incisuris segmentorum, praesertim ad latera albo-tomentosis. Halteres testacei, capitulo ad basim obscuriore. Alae costa et venis omnibus late fusco fuliginose limbatae, apice et areola anali limpidis. Pedes testacei, femoribus superne ad geniculos, tibiarum summo apice, et tarsis parte apicali nigricantibus, basi tarsorum fusco-rufa. Philippi."

E d w a r d s schreibt: "Hair around base of antennae white. Thorax with some white pubescence, in perfect specimens forming

a pair of narrow, ill-defined stripes and a patch in front of scutellum. Wings extensively darkened towards costa and along most of the veins; tip clear, including tips of veins r_5 and m_{1-2} , but cross-vein ir broadly clouded. Radial loop moderate. Bigot's collection includes a series of 6 ♂, 2 ♀, evidently correctly determined."

Ich habe in British Museum ein Maennchen und ein Weibchen aus der Sammlung von Bigot gesehen. Der Mittelstreifen der Tergite ist von laenglichen, isolierten, weissgelblichen Flecken gebildet. Weisse Haarflecken befinden sich vor dem Schildchen (zwei) und ueber der Fluegelbasis; beim Maennchen sind diese Flecken besser ausgepraegt. Die tiefschwarze Behaarung der Fuehler kontrastiert sehr stark mit der weissen (♂) oder (♀) weisslichen der Stirn.

7. *Lyophlaeba bigoti* Edw. ♀.

Edwards, Diptera, VII, 1934, 109.

Die Beschreibung von Edwards lautet: "Hair above and below base of antennae deep brownish-yellow. Hair of thorax and abdomen deeper yellow than in *pictinervis*; no white pubescence on thorax. Wings (fig. 30) much as in *pictinervis*, but dark seams over veins r_5 and m_{1-2} extending to wing-margin; cross-vein ir not seamed; suggestions of darker spots over cross-veins, base of r_4 , and on r_{2-3} just before the bend. Winglength, 11 mm. Type in Bigot's collection, labelled "M. vulgaris Phil., Chile".

Ich habe diese Art nicht gesehen, es ist jedoch klar, dass sie der *L. pictinervis* sehr nahe steht. Das Exemplar war bestimmt als *vulgaris* Phil., die Edwards fuer ein Synonym der *L. pictinervis* haelt, doch sagt er nicht weshalb. Er hat, glaube ich, weder die Typen von *L. pictinervis* noch von *L. vulgaris* gesehen. Meiner Meinung nach ist es besser, die Synonymie der *L. vulgaris* fuer zweifelhaft zu halten. Es ist moeglich, dass *L. bigoti* Edw. in Wirklichkeit eine *L. vulgaris* Philippi darstellt. Ich nehme die Edwards'sche Interpretierung dieser Art nur vorlaeufig an.

8. *Lyophlaeba infumata* Philip.

Philippi, Verhandl. zool.-bot. Ges. Wien, XV, 1865, 678; Paramonow, Trav. Mus. Zool. Kiew, N. II, 1931, 36; ? Edwards, Diptera, VII, 1934, 109; Paramonow, Eos, XIII, 1940, 43.

Die Beschreibung von Philippi lautet: "C. nigra, pilis flavis erectis densissime vestita, facie albosetosa, antennis atris;

thorace nigro-vittato; abdomine vitta mediana albido-notato; ano nigro-piloso; alis antice ad basin et paullo pone medium infumatis. Long. corp. 8 lin., extens. alarum fere 17 lin. In andibus prov. Santiago capta est. Die ungemein dichte, aufrecht stehende, blonde Behaarung zeichnet diese Art sehr aus und ist nur noch bei der folgenden Art (*canescens*) aehnlich. Die Brust zeigt drei schwaerzliche Striemen, von denen besonders die seitlichen deutlich sind; die mittlere ist blasser und schmaeler. Die Faerbung der Fluegel ist sehr charakteristisch. Die ganze Membran ist schwach getruebt und staerker gebraeunt, da wo bei *C. bifasciata*, *consobrina* etc. die dunklen Querbinden sind, aber nur bis zur Haelfte; die hintere (innere) Haelfte ist frei von dieser Truebung. Die Beine sind schwarz, die vorderen Schenkel auf der Unterseite, die Hinterschenkel ueberall mit silbernen Schueppchen bekleidet".

Die Interpretierung dieser Art, die Edwards gibt, ist ein wenig zweifelhaft; er selbst sagt: "I have a slight doubt as to the correctness of the determination"...

Wenn die Interpretierung von Edwards richtig ist, glaube ich, dass meine Notizen, die ich in British Museum gemacht habe, nicht ohne Nutzen sein werden. Ich habe 3 Maennchen und 2 Weibchen gesehen, die als *L. infumata* bestimmt, doch mit einem Fragezeichen versehen waren. Diese Art ist leicht zu erkennen durch ihre Fluegelzeichnung. Die gelbbraeunliche Faerbung ist wenig intensiv; sie ist nur laengs dem Vorderrand besser bemerkbar und zwar erstreckt sie sich bis zur Discoidalzelle; von einer Querbinde ist nichts zu finden. Fuehler nur dichtschwarz behaart. Thoraxborsten gelb. Ein gelbbefilterter Laengsstreifen auf der Mitte der Tergite, welcher nicht unterbrochen ist, ist sehr gut bemerkbar (doch fehlt er gaenzlich bei einem Exemplar der Sammlung Bigot). Die Augen des Maennchens sind nicht ganz zusammenstossend. Das Geaeder stimmt am besten mit dem von *C. bigoti* ueberein (fig. 30 bei Edwards), doch ist die hintere Fluegelhaelfte fast ganz wasserklar.

9. *Lyophlaeba canescens* Phil.

Philippi, Verhandl. zool. bot. Ges. Wien, XV, 1865, 678; Schiner, Novara Reise, Dipt. 1868, 133; Paramonow, Trav. Mus. Zool. N. II, 1931, 33; Edwards, Dipt. VII, 1934, 110; Paramonow, Eos, XIII, 1940, 43.

Die Beschreibung von Philippi lautet: "C. nigra, pilis albis erectis, praesertim in thorace et ad latera abdominis densis vestita; vitta abdominis mediana alba, interrupta; ano albido-piloso; alis antice ad basin et paullo medium infuscatis. Long.

corp. $5\frac{1}{2}$ lin., extens. alar. $11\frac{1}{2}$ lin. In prov. Santiago occurrit. — Der vorigen Art (*infumata*) sehr aehnlich. Das Gesicht ist ebenfalls ganz und gar weissborstig, die Fuehler kohlschwarz, die Fluegel aehnlich getruebt, die Behaarung aehnlich, doch auf dem Ruecken des Hinterleibes weniger dicht. Allein die Haerchen sind weit heller, mehr greis; auf dem Brustruecken kann ich keine Strimen erkennen; die weisse Laengsbinde des Hinterleibs ist unterbrochen und verschwindet auf den letzten Hinterleibsringen ganz; der After ist nich schwarz behaart, sondern mit denselben greisen Haerchen wie der Hinterleib besetzt; die Fluegel sind heller; die Querader am Grunde der letzten hintern Zelle ist nicht braun gesaeumt wie bei *C. infumata*."

Schiner fuegt hinzu: "Die Braeunung der hinteren Querader, wodurch sich *C. infumata* von *C. canescens*, wie Philippi angibt, besonders unterscheiden soll, scheint kein wesentliches Unterscheidungsmerkmal zu sein; sie ist bei den vorliegenden Stuecken etwas gebraeunt."

Edwards schreibt: "Much resembles *M. infumata*, but differs from that and all other species of this group in having the hair at the tip of the first antennal segment yellow instead of black. Hair around base of antennae whitish; some white pubescence on mesonotum as in *M. pictinervis*. Hair on last abdominal segment mostly pale. Wings with indefinite clouds and with cross-vein *ir* clear as in *infumata*, but with a slightly darker cloud over base of r_4 , and with a faint dark seam over basal section of m_3 . Tip of wing rather distinctly white by reflected light in ♂, very slightly so in ♀. I refer to this species a ♂ in the Berlin Museum from Cortaderal (Schoeneman); a ♀ in Bigot's collection, and a broken specimen in the British Museum from Marga Marga (Pirion)."

Von dieser Art habe ich in British Museum nur ein kopfloses Exemplar gesehen. Ich habe keine wesentlichen Unterschiedsmerkmale von *L. infumata* gefunden. Nur die Fluegelzeichnung ist besser ausgepraegt und zwar um die gewoehnliche Querader herum und an der Abzweigungsstelle der Aeste der 3. Laengsader befinden sich deutliche dunkle Flecken und an dieser Stelle ist eine Spur von Querbinde vorhanden.

10. *Lyophlaeba minuta* Param. ♀.

Paramonow, Trav. Mus. Zool. Kiew, N. II, 1931, 38; Edwards, Diptera, VII, 1934, 108.

Meine Beschreibung lautet: "Der *L. consobrina* aeusserst aehnlich, doch kleiner (Koerperlaenge 12 mm., Fluegellaenge 12 mm.). Die Kruemmung der 2. Laengsader ist viel schwaecher; sie ist nicht parallelseitig; ihre Laengsachse ist zur Laengsachse des Fluegels deutlich schraeg gestellt, waehrend sie bei *L. consobrina* fast senkrecht steht. Die Kruemmung ist auch nicht so tief; der Abstand des untersten Punktes vom Vorderrand ist deutlich weniger als der Abstand vom Hinterrand (bei *L. consobrina* das Gegenteil). Die mittlere durchsichtige Querstrieme ist in der Marginal- und Submarginalzelle (an der Basis) nicht gelb, doch ganz durchsichtig. Der Hinterleib ist im allgemeinen wie bei *L. consobrina* gezeichnet, doch sind alle Filzhaerchen nicht gelb und weiss, sondern fast nur weiss. Die mittlere Laengslinie ist nicht ununterbrochen wie bei *L. consobrina*, sondern besteht aus laenglichen Flecken, die einander nicht beruehren. Die zwei oberen Drittel der Stirn sind schwarzhaarig. Der Ruessel ragt nur wenig weiter als die Fuehler hervor. Die Mitten der Zellen sind dunkler als bei *L. consobrina*. Alles uebrige fast wie bei dieser Art. 1 ♀, 27.IX.1909, Taltal, Chile. R. Paessler leg. Typus in der Sammlung des Hamburger Museums."

Ich muss beifuegen, dass der Typus verloren gegangen ist waehrend des letzten Kriegs; ich habe hier alles angefuehrt, was wir ueber diese Art wissen.

11. *Lyophlaeba consobrina* Phil.

Philippi, Verhandl. zool. bot. Ges. Wien, XV, 1865, 676; Paramonow, Trav. Mus. Zool. Kiew, N. II, 1931, 35; Edwards, Diptera, VII, 1934, 108; Paramonow, Eos, XIII, 1940, 42.

Die Beschreibung von Philippi lautet: "*C. (Comptosia)* antennarum basi nigra; regione supra earum originem aequae alba ac facies; thorace ad latera niveo-lanato; alarum nervis late-fusco limbatis, praeter fasciam medianam et apicem hyalinas; pedibus nigris, etiam femoribus. Long. corp. 7 lin. In prov. Santiago, Aconcagua, Colchagua." Ferner fuegt er hinzu: "Eine zweite Form (*L. consobrina*, S. P.), von der ich mehrere Exemplare besitze, ist 7 Linien lang, bei 18 Linien Fluegelspannung. Der Kopf ist ganz und gar mit weissen Haaren bekleidet, auch dicht ueber den Fuehlern, nur mischen sich auf der Stirne und noch mehr auf dem Scheitel schwarze Haare dazwischen. Der Ruecken von Brust und Hinterleib traegt weniger abstehende Haare, und

diese sind feiner, dagegen mehr anliegend. Daher erscheint der Brustreecken blaechlich mit blasseren braunen Striemen; die Haare an den Seiten sind, eine Reihe roetlicher Borsten abgerechnet, rein weiss, dicht und wollig, wie auf der Unterseite der Brust. Das erste Hinterleibsglied ist hell aschgrau, mit einem schnee-weissen Haarbueschel in der Mitte; die folgenden haben hellbraune Hinterraender, die weit breiter sind als bei der vorigen Form (*C. bifasciata*) und in der Mitte einen weissen Fleck haben, von dem sich eine hellbraune Strieme nach vorn zieht, und weissliche Seitenraender. Die Unterseite des Hinterleibs ist schwaerzlich grau. Die Fluegel zeigen keinen Unterschied, die Beine sind aber ganz schwarz, selbst die Schenkel, waehrend Blanchard der *C. bifasciata* rote Schenkel "muslos mas bermejos" zuschreibt, und mit weisslichen Haerchen ziemlich dicht bekleidet, weit dichter als bei der vorigen Art. Wegen der gelben Behaarung und der braunroten Schenkel halte ich die erste Form fuer *C. bifasciata* und die zweite fuer neu..."

Seinerzeit habe ich zu dieser Beschreibung Folgendes hinzufuegt: "Diese Art ist der *L. bifasciata* sehr aehnlich, doch kleiner und viel graulich. Die Grundfarbe des Gesichts und der Stirn ist schwarz, das Kinn gelb. Am Hinterrand des Thoraxrueckens auf der Mitte befindet sich ein weisser Haarbueschel. Die goldgelbe Befilzung des Thoraxrueckens und des Schildchens faellt wenig in die Augen. Schildchen ganz schwarz. Auf der Mitte des 1. Hinterleibssegments (Hinterrand) befindet sich ein weisser Haarbueschel, der bei *L. bifasciata* fehlt. An den Seiten des 1. Segmentes befinden sich gelbliche Haare, die drei befilzten Laengslinien sind weiss. Die Zeichnung des Hinterleibs ist derselben von *L. bifasciata* sehr aehnlich. Unten ist der Hinterleib schwarz, mit schmalen gelben Raendern, weiss befilzt und behaart. Geader wie bei *L. bifasciata*, doch ist die Kruemmung der 2. Laengsader noch tiefer. Die Fluegelzeichnung gleicht der von *L. bifasciata* sehr. Die Axillarzelle ist ganz glashell, doch ist die Analzelle nur an der Spitze durchsichtig. Die Spitze der unteren Basalzelle ist durchsichtig (bei *L. bifasciata* ist sie fast ganz ausgefuellt). Die mittlere milchigweisse Querstrieme ist in der Marginal- und Submarginalzelle gelblich, nicht weiss. Die Mitten der Zellen sind durchsichtiger als bei *L. bifasciata*. Meine Exemplare (Maennchen) stammen aus Rio Blanco, 5, 10, XII.1917. P. Herbst leg. (Deutsch. Ent. Museum). Koerperlaenge 17 mm., Fluegellaenge 17 mm. Der Vorderrand des Fluegels ist wie bei *L. bifasciata* ungedornt."

In British Museum habe ich Folgendes notiert: Die grösseren Borsten des Thoraxrueckens sind roetlich. Auf der Oberseite der Tergite befinden sich 3 Laengsstreifen weisser Haare. Reinweisse Haare (Haarflecken) befinden sich auf den Brustseiten vor der Fluegelbasis, auf dem Thoraxruecken etwas nach hinten von der Fluegelbasis, unmittelbar vor dem Schildchen (ein Fleck). Die ganze Unterseite des Koerpers ist reinweiss behaart, doch sind die letzten Sternite auch mit spaerlichen schwarzen Haaren bedeckt. Schwinger gelb. Beine schwarz, Schienen gelb.

12. *Lyophlaeba blanchardi* Param. ♂, ♀.

Paramonow, Trav. Mus. Zool. Kiew, N. II, 1931, 30 et 32; Edwards, Diptera, VII, 1934, 108; Paramonow, Eos, XIII, 1940, 42.
Syn.: *bifasciata* Blanch. nec Macq. (Blanchard, in Gay: Hist. fis. y polit. de Chile, Zool. VII, 1852, 385, Dipt. tab. III, fig. 8.

Die Originalbeschreibung von Blanchard lautet: "C. nigra flavo-tomentosa; antennis nigrescentibus, basi testaceo-pilosis, scutello marum nigro, feminarum rufo; alis fuscis, fasciis duabus hyalinis. Long. corp. 5 lin. Cuerpo negro. Trompa una vez más larga que la cabeza. Esta revestida de un vello blanquizco ó amarillento. Antenas negruzcas, con sus dos primeros articulos revestidos de pelos leonados, cortos y muy densos. Tórax negro, cubierto en sus lados de pelos leonados ó cenicientos. Escudo negro en el macho y bermejo en la hembra. Alas morenas, con los bordes de las nerviosidades mas oscuros, y una faja mediana y la extremidad transparentes y enteramente claras. Patas morenas, con los muslos mas bermejos. Abdomen negro, vestido, en los lados, de pelos negros y de un bermejo mas ó menos obscuro por debajo. Esta hermosa especie se halla en Coquimbo."

In freier Wiedergabe lautet das: Koerper schwarz, Ruessel doppelt so lang wie der Kopf. Der Kopf ist mit einer weisslichen oder gelblichen Wolle (Pubescenz) bedeckt. Fuehler schwaerzlich, die zwei ersten Glieder sind mit gelbbraeunlichen, kurzen und sehr dichten Haaren bedeckt. Thorax schwarz, an den Seiten mit gelbbraeunlichen oder schiefergrauen Haaren bedeckt. Schildchen beim Maennchen schwarz, beim Weibchen rot. Fluegel dunkelbraun, die Raender der Adern dunkler, mit durchsichtiger wasserklarer Mittelbinde und Spitze. Beine dunkelbraun, mit roetlicheren Schenkeln. Hinterleib schwarz, an den Seiten mit schwarzen Haaren und unten mit einem mehr oder weniger dunklen Rot. Diese schoene Art ist in Coquimbo heimisch."

Die Beschreibung zeigt uns deutlich, dass Blanchard

nicht *L. bifasciata*, sondern eine andere Art vor sich hatte; ich habe diese Art *L. blanchardi* genannt.

Edwards hat die Meinung geäußert, dass die beiden beschriebenen Geschlechter nicht zu derselben Art gehören, da das Schildchen des Männchens schwarz, das des Weibchens rot ist. Es ist sehr wahrscheinlich, dass es so ist. Ich schlage vor, den Namen *blanchardi* der Form mit schwarzen Schildchen beizulegen.

13. *Lyophlaeba pallipennis* Param. ♀.

Paramonow, Eos, XIII, 1940, 34.

Diese Art gehört zur Gruppe, welche eine schwach entwickelte Flügelzeichnung besitzt (also *infumata*, *canescens*, *montana*, *vulgaris*); leider sind diese Arten mir *ex natura* nicht bekannt; daher kann ich keine sicheren Unterscheidungsmerkmale von der Flügelzeichnung geben.

Die Grundfarbe des Körpers ist braunschwarz. Der Mundrand aber, die beiden basalen Fühlerglieder, Schulter-schwielen, Schildchen, Schwinger und Beine sind gelb. Gesicht reinweiss behaart; die Stirn ist oben schwarz, unten gelblich abstehend behaart. Auf der Mitte der Stirn ist die gelbe Grund-färbung durchscheinend. Der Hinterkopf ist nur in den Ausbuchtungen des Augenrands dicht weisslich bestäubt. Der Ruessel ragt bei meinem Exemplar nur wenig hervor (die Mitte des 3. Fühlerglieds erreichend). Das 3. Fühlerglied ist fast so lang wie die beiden ersten zusammen. Die basalen Glieder sind oben kurz schwarz, unten lang weisslich behaart. Der Scheitel nimmt fast $\frac{1}{7}$ der Kopfbreite ein (ein wenig mehr). Der Ozellenhoecker nimmt die Hälfte der Scheitelbreite ein.

Der Thoraxrücken ist ungestreift, kurz abstehend schwarz behaart, vorn gelblich befleckt und am Vorder- und Seitenrand gelb und weiss gemischt behaart. Borsten nicht kraeftig, gelblich. Thoraxseiten verhältnismässig sehr spärlich weisslich behaart. Beine ganz gelb, nur die Kniee schmal schwarz.

Die 2. Laengsader ist an der Spitze stark (nicht sehr stark) gekrümmt; die beiden Seiten der Krümmung sind nicht parallel; die Ausbuchtung ist breit offen; die der Flügelbasis naeherliegende Seite dieser Krümmung ist dem Stamm der 3. Laengsader parallel (bei den anderen Arten der *L. bifasciata*-Gruppe habe ich das niemals gesehen). Die Ader, welche die Submarginalzelle teilt, steht fast auf der Mitte des basalen Teils der 2. Sub-

marginalzelle. Die Fluegel sind ueberwiegend durchsichtig, da der gefaerbte Teil eine viel kleinere Flaeche einnimmt. Der ganze Vorderrand des Fluegels ist so breit gefaerbt wie die Marginalzelle breit ist, doch reicht die braungelbliche Faerbung nur bis zur Kruemmung der 2. Laengsader. Die kleine Querader, welche die 1. Submarginalzelle teilt, der basale Abschnitt des oberen Astes der 3. Laengsader, der Abschnitt der 3. Laengsader zwischen der gewoehnlichen Querader und der Gabelungsstelle der 3. Laengsader, die gewoehnliche Querader, der letzte Abschnitt der oberen Seite der Discoidalzelle, ihre Spitzenader, die Basis der 3. Hinterrandzelle und die Ader, welche diese Zelle von der 4. abtrennt, sind alle beiderseits schmal, doch scharf, braeunlich umsaeumt. Diese Umsaeumung der obenerwaehnten Adern ist zickzackfoermig; man kann sie als Rest des braunen Querstreifens der anderen Arten betrachten. Anal-, Axillar-, Discoidal-, und Hinterrandzellen sind fast ganz durchsichtig.

Hinterleib oben sehr kurz und spaerlich, abstehend, schwarz behaart, nur mit einer Spur der hellen Befilzung (hie und da, obgleich das Exemplar ziemlich gut erhalten ist). Die Seiten des Hinterleibs sind dichter und laenger behaart, die vier ersten Segmente gelblich, die uebrigen schwarz behaart, doch ist die Behaarung weit spaerlicher als z. B. bei *L. bifasciata*. Hinterleib unten gelblich, spaerlich weisslich behaart und befilzt, nur die zwei letzten Sternite sind groeber schwarz behaart.

Koerperlaenge 15 mm., Flugellaenge 16,5 mm.

1 ♀, Chile. Typus in der Sammlung des Zoolog. Museums in Muenchen (Paramonow, 1940).

14. *Lyophlaeba montana* Philip.

Philippi, Verhandl. zool. bot. Ges. Wien, XV, 1865, 677; Paramonow, Eos, XIII, 1940, 42, nec *montana* Edw. 1934.

Die Beschreibung von Philippi lautet: "C. nigra, fulva hirsuta; antennarum basi rufa; facie niveo-setosa; alis hyalinis, fusco-nervosis; nervis anticis, transversalibus omnibus, anali in medio fusco-limbatis. Long. corp. 7 lin., extens alar. 16 lin. In andibus prov. Santiago et Aconcagua. Das erste Fuehlerglied ist rotbraun, der Brustuecken grauschwarz mit drei schmalen weisslichen Striemen, die aber durch die dichten, gelblichen und graubraunen Haare ziemlich verdeckt sind. Die Haare an den Seiten der Brust sind gelblich, die an den Seiten des Hinterleibes schwarz. Auf der Mitte des ersten Hinterleibsegmentes steht ein kreisrunder Bueschel weisser Haare, sonst ist der Hinterleib

schwarz, mit schmalen weisslichen Raendern der Segmente und spaerlich mit schwarzen Haaren bekleidet. Ausser den in der Diagnose genannten Adern sind auch noch, da wo bei *C. bifasciata* eine braune Binde ist, die Laengsadern mit einem braeunlichen Saume eingefasst. Die Schwinger haben einen braunen Stiel und ein an der Spitze weisses Koelbchen. Die Beine sind hellbraun.

Edwards (s. unten *L. edwardsi* sp. nov.) hat diese Art mit einer anderen verwechselt.

15. *Lyophlaeba edwardsi*, n. sp. ♀.

Syn. *L. montana* Edw. Diptera, VII, 1934, 107 (nec Philippi, 1865).

Edwards schreibt: "A specimen in the British Museum from Cordillera (Santiago province ?), Chile, is probably this species, as the wings agree rather well with Philippi's description, although the abdomen has continuous stripes of white pubescence on the sides and down the middle line, whereas Philippi states that the abdomen is black except for a spot of white pubescence on the first segment; perhaps he described a denuded specimen. Wings (fig. 28) somewhat as in *landbecki*, but conspicuously darker brown spots on cross-veins, etc. (including one at base of third posterior cell); lower basal cell broadly clear at tip, and tip of vein *Cu* clear."

Ich habe das Exemplar im British Museum gesehen. Es ist kopflos. Fluegellaenge 13 mm. Thoraxborsten roetlich. Schwinger gelb, Beine gelb. Drei weissliche Laengsstreifen auf dem Hinterleib. Die ganze Unterseite des Koerpers weiss behaart. Schildchen schwarz. Die Seiten des Thoraxrueckens weiss behaart.

Edwards hat diese Art fuer *L. montana* Philippi gehalten; ich glaube aber, dass seine Beschreibung und die Abbildung des Fluegels deutlich zeigen, dass wir es hier mit einer neuen Art zu tun haben.

Wenn wir die Abbildung des Fluegels von *L. montana* (sensu Edwards) mit der Beschreibung von Philippi vergleichen, sehen wir, dass sie nicht uebereinstimmen. Die Art von Edwards hat eine gut entwickelte Fluegelzeichnung, welche Querbinden bildet; Philippi jedoch sagt: "alis hyalinis, fusco nervosis; nervis anticis, transversalibus omnibus, anali in medio fusco-limbatis", d. h. der Fluegel hat eine schwach entwickelte Zeichnung, die laengs der Adern verteilt ist, doch keine Querbinden bildet. Uebrigens stellt F. W. Edwards selbst vor die Abbildung ein Fragezeichen.

16. *Lyophlaeba chilensis* Param. ♂.

Paramonow, Trav. Mus. Zool. Kiew, N. II, 1931, 34; Edwards, Diptera, VII, 1934, 106 (nota); Paramonow, Eos, XIII, 1940, 38.

Die Grundfarbe des Koerpers ist braunschwarz. Der Mundhoehlenrand, Taster, Kinn, die beiden basalen Fuehlerglieder mit Ausnahme der Oberseite des 2. Glieds, Beine, Schwinger, Bauch und die schmalen Ecken der Hinterleibssegmente sind gelb. Die Stirn und das Gesicht sehr dicht schneeweiss behaart; das 1. Fuehlerglied ebenso, doch befinden sich auf der Oberseite desselben an der Spitze einzelne dichtscharze Haare; ebensolche Haare befinden sich auf der Oberseite des 2. Fuehlerglieds. Das 1. Glied ist kurz, sehr dick, an der Spitze aufgeschwollen; das 2. sehr kurz, breiter als lang; das 3. Glied schwarz, konisch, nur etwas laenger als das 1. Ruessel um die Haelfte der Kopflaenge aus der Mundhoehle hervorragend. Die Augen sind aeusserst schmal getrennt, fast zusammenstossend. Ozellenhoecker aeusserst schmal, braun behaart. Hinterkopf graulich bestaeubt, mit kurzen anliegenden weissen Haaren. Die Ausbuchtung der Augen ist sehr stark, daher scheinen dieselben ganz nierenfoermig; in der Ausbuchtung sind die Haare laenger und bilden eine Art Bueschel.

Die Grundfarbe des Thoraxrueckens ist deutlich schmal hellgestriemt: auf der Mitte eine gelbe Strieme und zwei weisse jederseits; ausserdem sind die Seiten des Rueckens weiss bestaeubt (es sind nur undeutliche Striemen vorhanden). Die Borsten des Thoraxrueckens sind schwarz und gelb gemischt. Die Seiten des Thoraxrueckens sind weiss behaart, der Vorder- rand gelblich, der Ruecken selbst schwarz behaart; ausserdem befindet sich hie und da ein gelbes, fast goldenes Toment. Der Hinterrand des Schildchens ist reinweiss behaart und befilzt. Auf der Mitte ist es schwarz behaart und gelb befilzt, die Borsten sind gelb und schwarz. Die Seiten des Thorax sind hie und da bueschelweise reinweiss behaart, auf den Mesopleuren stehen gelbe Borsten. Schwinger braeunlich, mit gelbem Knopf. Beine rotgelb, gelb beschuppt und kurz schwarz beborstet, Pulvilli stark entwickelt.

Der Fluegel ist von einer eingentuemlichen Form: der Vorderrand des Fluegels ist an der Muendungsstelle der Mediastinalader nach vorn deutlich ausgebogen, vor der Spitze sehr stark gekruemmt (bei *L. boliviana* n. sp. ist er erst fast gerade und kruemmt sich sehr allmaehlich und regelmaessig vor der Fluegel- spitze). Die 2. Laengsader ist aeusserst stark an der Spitze gebogen. Die gewoehnliche Querader liegt wie bei den anderen

Arten beinahe am Ende des dritten Viertels der Discoidalzelle. Die 1. Hinterrandzelle ist am Ende wie gewoehnlich offen, so breit wie die gewoehnliche Querader oder etwas schmaeler. Die 2. Hinterrandzelle ist an der Spitze deutlich breiter als die 3. Hinterrandzelle, der 4. Hinterrandzelle fast gleich (bei *L. boliviana* sind die 2. und 3. Hinterrandzelle fast gleichbreit, deutlich schmaeler als die 4.). Die Abzweigungsstelle der 2. und 3. Laengsader liegt deutlich vor der Spitze (in der Originalbeschreibung steht unrichtig "vor der Basis") der Discoidalzelle (wie bei den anderen Arten). Die 2. Laengsader ist in der Gegend der schraegen ueberzaehligen Querader so stark zum Vorderrand gekrueumt, dass der Abstand vom Vorderrand an der schmaelsten Stelle zweimal kleiner ist als die obenerwaehnte Querader lang ist (bei den anderen Arten ist der Abstand maximal $1\frac{1}{2}$ mal kleiner). Die dunkelbraune Fluegelzeichnung ist sehr stark von dem durchsichtigen Teil des Fluegels getrennt (nicht allmaehlich in denselben uebergehend), sie ist ausserdem viel ausgeschnittener als bei den verwandten Arten, da die hellen Flecke der aeusseren Querbinde hier ganz glashell oder sogar kalkweiss sind. Folgende Teile des Fluegels sind durchsichtig: der Fleck in dem basalen $\frac{1}{3}$ der oberen Basalzelle, der Fleck nahe der Basis der unteren Basalzelle und vor der Spitze derselben, Axillarzelle mit Ausnahme der Mitte, die von einer dunklen, den Hinterrand nicht erreichenden, Makel eingenommen ist. Das erste Drittel der 1. Submarginalzelle, die aeusserere Haelfte der oberen Basalzelle (fast bis zur gewoehnlichen Querader), die innere Haelfte der Discoidalzelle sind ebenfalls durchsichtig. Die 4., 3. und 2. Hinterrandzellen sind in der Mitte breit durchsichtig; in der ersten Hinterrandzelle liegt ein, die Spitze der Zelle nicht erreichender, Fleck, der nur laengs der Ader, die die 1. von der 2. Hinterrandzelle abtrennt, liegt. Die Spitzen der Marginal- und beider Submarginalzellen sind breit durchsichtig, kalkweiss. Endlich an der Spitze des ersten Teils der 2. Submarginalzelle liegt je ein grosser durchsichtiger Fleck.

Hinterleib unten sehr spaerlich weiss behaart, ziemlich dicht goldgelb befilzt, ausserdem auf der Mitte und an den Seiten liegen drei deutliche reinweisse Filzstreifen. Oberseite des Hinterleibs goldgelb befilzt und schwarz abstehend behaart (an den Seiten sind die Haare dichter). Ausserdem liegen an den Seiten der Segmente dreieckige reinweisse Flecke, die zusammengenommen zwei deutliche Seitenfilzstreifen bilden. Auf der Mitte des 1.-6. Segments liegt ein weisser dreieckiger Fleck, der nur die

hintere Haelfte der Segmente einnimmt und mit seiner Spitze den Hinterrand der Segmente beruehrt. Das 7. und 8. Segment tragen in der Mitte keine Flecken.

Koerperlaenge 13 mm., Fluegellaenge 13 mm.

1 ♂, II.X.1917, Olmué, Chile. Herbst leg. Typus in der Sammlung des Deutsch. Entom. Instituts.

Ich habe von dieser Art noch 4 Stueck (Maennchen) untersucht (Rancagua, 12.1904. P. Herbst leg.). Alle unterscheiden sich dadurch, dass der durchsichtige Fleck vor der Spitze der unteren Basalzelle fehlt; die 2. Laengsader ist nicht so stark zum Vorderrand gebogen, die basale Haelfte der oberen Basalzelle durchweg dunkel gefaerbt, die 2., 3. und 4. Hinterrandzelle kann man als durchsichtig bezeichnen (nur die Raender sind dunkel umsaeumt); alle Hinterleibssegmente (1-8) tragen oben einen weissen Fleck in der Mitte; alle Borsten des Thoraxrueckens und Schildchens sind roetlichgelb. Da diese Merkmale keine grosse Bedeutung haben und andererseits die *L. chilensis* nur nach einem einzigen Exemplar beschrieben ist, halte ich es fuer zweckmaessig, die genannten Exemplare zu dieser Art zu stellen.

17. *Lyophlaeba landbecki* Phil.

Philippi, Verh. zool. bot. Ges. XV, 1865, 677; Schiner, Novara Reise, Dipt. 1868, 133; Paramonow, Trav. Mus. Zool. Kiew, N. II, 1931, 37; et Eos, XIII, 1940, 42.

Die Beschreibung von Philippi lautet: "C. antennarum basi roseo-alba; facie omnino niveo-pilosa; thorace ad latera albo-lanato, supra distincte albido-vittato; abdomine fusco, linea mediana interrupta lateribusque albis: alarum nervis late fusco-limbatis, fascia transversa apiceque hyalinis; pedibus pallide fuscis. Long. corp. 6 lin., extens. alarum 14 lin. E prov. Colcagua specimen attulit orn. Landbeck. — Ich habe diese Fliege lange fuer *C. consobrina* gehalten, allein sie unterscheidet sich durch roetliche Fuehlerbasis, dichtere Behaarung der Oberseite des Koerpers, braune, nicht schwarze Faerbung des Hinterleibs und etwas andere Faerbung der Fluegel. Bei *C. consobrina* ist die Spitze der zweiten Basilarzelle wasserhell, der nervus axillaris, bis an das letzte Viertel braun gesaeumt, der nervus analis in seiner letzten Haelfte mit einem schmalen Saume versehen, der den Fluegelrand nicht erreicht. Bei *Comptosia landbecki* dagegen ist die zweite Basilarzelle ganz braun, der Axillarnerv nur in der Mitte mit einem laenglichen braunen Fleck versehen, der Analnerv bis zum Fluegelrand breit braungesaeumt."

Ueber die Faerbung der Unterseite sagt P h i l i p p i kein Wort (E d w a r d s ebenso); da er aber diese Art nur mit *L. consobrina* vergleicht und diese Art "lange fuer *L. consobrina* gehalten" hat, (dieselbe hat eine zeichnungslose Unterseite des Hinterleibs), so kann man voraussetzen, dass dieses sehr in die Augen fallende Merkmal von P h i l i p p i nicht uebersehen ist und dass seine Art eine besondere Art darstellt. Die Unterseite des Hinterleibs der *L. chilensis* traegt (wie die Oberseite) 3 sehr deutliche, schmale, reinweisse Laengsstreifen.

E d w a r d s schreibt: "Smaller than the last four species (*L. bifasciata*, *philippii*, *transandina*, *haywardi*) (wing-length, 13 mm.). First antennal segment reddish as in *bifasciata*, but integument of scutellum wholly black. Third antennal segment slender on rather less than the distal half. Proboscis shorter than in the last four species. Mesonotum with mixed yellowish and white pubescence, latter forming three rather indefinite stripes and a patch in front of scutellum. Abdomen with sides and posterior corners of tergites clothed with white pubescence and with a middorsal stripe of white pubescence. Wings with the dark bands less uniform than in *bifasciata*; lower basal cell wholly dark; cross-vein not conspicuously more darkly-bordered than other veins; a small clear area at base of third posterior cell; vein Cu broadly dark to the margin; An dark-bordered in middle only.

Ich glaube, dass E d w a r d s unrichtig *L. chilensis* Param. fuer ein Synonym der *L. landbecki* gehalten hat. P h i l i p p i sagt: "... die zweite Basilarzelle ist ganz braun"; meine Art hat einen durchsichtigen "Fleck nahe der Basis der unteren Basalzelle und vor der Spitze derselben". Es gibt auch andere Unterscheidungsmerkmale; es genuegt, die Beschreibungen aufmerksam zu vergleichen.

Es ist interessant, folgende Anmerkung von E d w a r d s anzufuehren: "A single male in the Berlin Museum from Contulmo (Schoeneman) represents either a variety of *landbecki* or another distinct species; it differs from the specimens noted in having the lower basal cell clear at the base and tip, and in some other small details of wing-markings".

Es ist hoechst wahrscheinlich, dass gerade dieses Exemplar eine echte *L. chilensis* darstellt. Warum Edwards dieses Merkmal beim Typus von *L. chilensis* nicht angemerkt hat, ist fuer mich unbegreiflich. Meiner Meinung nach sind *L. landbecki* und *L. chilensis* nicht identisch.

18. *Lyophlaeba philippii* Param. ♂, ♀.

Paramonow, Trav. Mus. Zool. Kiew, N. II, 1931, 30; Edwards, Diptera, VII, 1934, 105; Paramonow, Eos, XIII, 1940, 42.
Syn.: *L. bifasciata* Philippi, Verh. zool. bot. Ges. Wien, XV, 1865, 675.

Philippi schreibt: "Bei Gay ist nur eine Art beschrieben: *Comptosia bifasciata* Macq. Gay, VII, p. 380, tab. 3, fig. 8. "E prov. Coquimbo" et Aconcagua? — Die Abbildung stimmt nicht mit der Beschreibung, indem in den dunklen Fluegelteilen der Fluegel gleichmaessig gefaerbt ist, waehrend doch nur die Nerven braun gesaeumt sein sollen, so dass also auch in den dunklen Teilen die Mitte der Fluegelzellen wasserhell aber doch nur schwach getruebt ist. Nach der Figur waere die Fliege beinahe 8 Linien lang, nach der Beschreibung soll sie 5 Linien lang sein. Ich besitze aus der Prov. Aconcagua eine Fliege, die gar 10 Linien lang ist und 25 Linien Fluegelspannung hat. Das erste Fuehlerglied ist braunrot, die beiden folgenden schwarz. Die Haare des Untergesichtes sind weiss, die ueber den Fuehlern rostgelb, die auf Stirne und Scheitel schwarz. Der Thorax zeigt oben jederseits eine beinahe schwarze, in der Mitte zwei kastanienbraune Striemen, die Raeume zwischen diesen Striemen schimmern blaechlich. Die Haerchen sind oben schwaerzlich, borstenartig, an den Seiten braeunlich, unten schneeweiss. Der Hinterleib ist oben dicht mit schwarzen, schraeg abstehenden, borstenaehnlichen Haaren bekleidet, die Haerchen des ersten Segmentes jedoch sind weicher, laenger und gelblich. Auf dem Hinterrande eines jeden Segmentes, auf einem breiten Mittelstriemen vom dritten Segmente an, an den Seiten des zweiten, dritten, vierten, fuenfsten und sechsten stehen anliegende weisse Haare, und innerahlb dieser Seitenflecke stehen braunrote Haare, sodass nur ein halbkreisfoermiger oder bogenfoermiger Fleck auf jedem Segmente schwarz bleibt. Solche braunrote Haare fassen auch als schmaler Saum aussen die weissen Seitenflecke des fuenfsten und sechsten Segmentes ein. Der Bauch ist grau, und grau behaart, die Raender der Abschnitte, namentlich die Seitenraender, sind roetlich. Dagegen sagt Blanchard von *C. bifasciata* a. a. O: "Hinterleib schwarz, an den Seiten mit schwarzen Haaren bekleidet, unten von einem helleren oder dunkleren Braunrot". Wenn er nicht etwa ein ganz abgeriebenes Exemplar beschrieben hat, muss seine Art verschieden sein."

Die lateinische Diagnose Philippi's lautet: "*C. antennarum basi rufa, regione supra earum originem ferrugineo-pilosa; thorace ad latera flavo-hirsuto; alarum nervis fusco-late-limbatis,*

praeter fasciam medianam et apicem hyalinas; pedibus fuscis, femoribus rufis. Long. corp. 10 lin."

Es ist ganz klar, dass die Art von Philippi keine *L. bifasciata* ist, ich habe seinerzeit diese Art *L. philippii* n. sp. genannt.

Edwards schreibt: "Very similar to *bifasciata*, but with pubescence at sides of abdomen mostly white, bordered internally by yellow; the interrupted median dorsal stripe also white. 2 ♀ in British Museum, labelled Cardas and Marga Marga (A. Pirion) have the wings almost as in *bifasciata*, but differ in having a small round whitish dot in the upper outer corner of the otherwise dark lower basal cell; a ♂ in the Oxford Museum has wing-markings exactly as in *bifasciata*."

19. *Lyophlaeba bifasciata* Macq. ♂, ♀.

Macquart, Diptères exotiques ou peu connus, suppl. 4, 1849, 114, tab. 10, fig. 18; Schiner, Novara Reise, Dipt. 1868, 133; Paramonow, Trav. Mus. Zool. Kiew, 1931, N. 11, 30; Edwards, Diptera, VII, 1934, 104; Paramonow, Eos, XIII, 1940, 30 et 42.
non *bifasciata* Blanch. in Gay: Hist. fls. y polit. de Chile, Zool., VII, 1852, 385, Dipt. tab. III, fig. 8.
non *bifasciata* Phil. Verh. zool. bot. Ges. Wien, XV, 1865, 675.

Die Beschreibung von Macquart lautet: "Nigra, scutello rufo. Alis fuscis, duabus fasciis albis (Tab. 10, fig. 18). Long. 58 lin. ♂, ♀. Trompe une fois plus longue que la tête. Palpes fauves, à poils blancs. Face à poils blancs. Front à poils d'un blanc jaunâtre; ♀ assez large, mais rétréci vers l'extrémité. Antennes: les deux premiers articles fauves; le troisième noir, allongé, conique, confondu avec le style. Thorax noir, à poils fauves; côtés à poils blancs; écusson fauve, à base noir. Abdomen noir (dénudé); ventre fauve ♂, fauve à bandes noirâtres ♀. Cuisses fauves ♂, brunes ♀; jambes brunes; antérieures testacées; tarsi bruns. Balanciers fauves. Ailes brunes, à large bande au milieu et extrémité blanches; l'intérieur des cellules plus ou moins clair dans les parties brunes; quatre sous-marginales. Du Chili. M. Gay Museum."

Meine Interpretierung dieser Art ist richtig. Edwards hat das von mir bestimmte Exemplar mit dem Typus verglichen. Meine Beschreibung lautet:

Die Grundfarbe ist braunschwarz. Stirn, Gesicht, Taster, das 1. Fühlerglied, die Schulterbeulen, die Hinterecken des Thoraxrueckens, das Schildchen, Beine, der Hinterleib unten und einige Stellen an den Seiten des Thorax sind roetlichgelb. Der ganze Koerper ist stark graulich bestaeubt, was besonders gut bemerkbar ist, wenn er etwas abgerieben ist; besonders stark ist der Hin-

terkopf gepudert. Die Stirn oben ist bei beiden Geschlechtern schwärzlich. Die Augen des Männchens sind durch eine sehr kurze und schmale Strieme getrennt, die viel schmäler als der Ocellenhoecker ist. Der Scheitel nimmt beim Weibchen fast $\frac{1}{7}$ der Kopfbreite ein. Die Haare auf dem Ocellenhoecker sind schwarz, auf der Stirn rostgelb, beim Männchen manchmal oben mit einer Zumischung von schwarzen Haaren. Des Gesicht und die Fühler unten sind fast reinweiss behaart. Fühler oben schwarz behaart. Das 1. Fühlerglied ist zylindrisch, etwas aufgeschwollen, dick; das 2. Glied ist äusserst klein, fast rund; das 3. ist schmal, mehrmals schmäler als das 1., konisch, fast so lang wie die beiden ersten zusammen. Hinterkopf nackt. Nackenkrause weisslich.

Der Thoraxrücken ist ziemlich dicht, doch kurz gelbroetlich befilzt, behaart und beborstet; ausserdem gibt es ziemlich zahlreiche, abstehende, schwarze Haare, die schwach bemerkbar sind. Thoraxseiten weisslich behaart, mit einigen roetlichgelben Borsten. Schildchen spärlich gelblich befilzt und schwarzbehaart, Borsten rotgelb. Beine gelbroetlich mit schwarzen Tarsen. Pulvilli deutlich. Beine gelb beschuppt und schwarz beborstet.

Flügel dunkelbraun, mit einer ziemlich breiten, durchsichtigen Querstrieme auf der Mitte, die die innere Hälfte der Discoidalzelle einnimmt und gegen den Hinterrand des Flügels sich verjüngt, sodass am Rande selbst nur die innere Hälfte der 4. Hinterrandzelle durchsichtig ist. Die Spitze des Flügels ist auch durchsichtig. Die Grenze geht vom Vorderrand ueber die Beruehrungspunkte mit den ueberzaehligen Submarginalqueradern zur Spitze der 1. Hinterrandzelle fast in gerader Linie. Die glashellen Teile des Flügels kann man besser milchig nennen. Laengs der ersten Hälfte der Axillarader befindet sich ein laenglicher, fast durchsichtiger Fleck. Die Mitten der Zellen sind durchsichtiger als die Raender. Die Zahl der Submarginalzellen ist normal 4, doch gibt es auch Exemplare mit 5 und sogar 6 Submarginalzellen. In solchen Faellen sind die Zellen auf einem Flügel etwas anders als auf dem anderen, was deutlich zeigt, dass es sich um eine Abweichung handelt. Die 1. Hinterrandzelle ist an der Spitze sehr stark verengt, deutlich weniger als die gewoehnliche Querader lang ist. Die 2. und 4. Hinterrandzelle sind fast gleichbreit (an der Spitze), die 3. zweimal schmäler. Die gewoehnliche Querader steht am Ende des vierten $\frac{1}{5}$ oder $\frac{1}{6}$ der Discoidalzelle. Die Analzelle ist an der Spitze schmal, schmal geoeffnet. Die 2. Laengsader macht vor der Spitze eine sehr

starke Kruemmung nach unten, sodass die Seiten dieser Kruemmung einander fast parallel liegen. Der unterste Punkt der Kruemmung liegt vom Vorderrand fast so weit entfernt wie vom Hinterrand des Fluegels. Schwinger gelblich.

Die erste Hinterleibssegment ist graulich gepudert, mit gelber Behaarung und laengs dem Hinterrand fast goldgelb befilzt. Die uebrigen Segmente sind am Hinterrand ebenso schmal befilzt. Auf der Mitte des 2.-7. Segmentes befindet sich eine deutliche, goldgelb befilzte Laengslinie. Die Seiten der Segmente sind mit fast dreieckigen, ziemlich grossen, goldgelb befilzten Flecken versehen, die zwei deutliche Seitenlinien bilden. Der groesste Teil jedes Segmentes ist schwarz, zwi schwarze trapezfoermige Flecke bildend, denn die Mittellinie trennt sie in zwei Teile. Der Vorder- und Hinterrand des Segments bilden die zwei parallelen Seiten der trapezoidalen Flecken, wobei die obere Seite immer deutlich laenger ist als die untere. Die Mittellinie bildet eine senkrecht gestellte Seite dieses Trapezs, die Aussenseite ist schraeg gestellt. Die Oberseite des Hinterleibs ist ausser den genannten drei gelblichen Laengslinien spaerlich schwarz behaart. Die Unterseite ist gelblich befilzt und behaart.

Koerperlaenge 20 mm., Fluegellaenge 21 mm.

Meine Exemplare stammen von Limache, Chile, 4. 1915. P. Herbst leg. (Deutsch. Ent. Museum).

Als ich 1931 diese Art neu beschrieb und die unrichtigen Identifizierungen von Blanchard und Philippi korrigierte, war fuer mich die Artengruppe mit einer ueberzaehligten Querader fast unbekannt. Seit 1931 habe ich viel neues Material gesehen und bin zum Schluss gelangt, dass der Artenreichtum in dieser Gattung viel groesser ist als ich mir frueher vorgestellt hatte. Ausserdem ist es klar, dass die Artunterschiedsmerkmale viel feiner sind als ich und andere Forscher frueher angenommen haben.

Ogleich ich seinerzeit die Abbildung Macquart's von *L. bifasciata* aufmerksam studierte und die ueberzaehlige Querader in der 1. Hinterrandzelle bemerkte, hielt ich dieses Merkmal fuer ein aberrantes. Auf diese Weise musste ich die echte *L. bifasciata* zu dieser eigentuemlichen Gruppe beziehen. Gluecklicherweise brauchen wir keine Umbenennung zu machen: Edwards hat den Typus dieser Art gesehen und mit einem von mir bestimmten Exemplar verglichen; sie stimmen ganz ueberein. Dieses eigentuemliche Merkmal konnte er nicht ausser

Acht gelassen, denn er braucht dieses fuer die zwei nebenstehenden Arten.

Es kann die Frage entstehen: warum hat jedoch *Macquart* die ueberzaehligen Queradern auf den beiden Fluegeln gezeichnet? Vielleicht darum, weil er das Exemplar einer anderen nahestehenden Art zum Zeichen gebraucht hat. Unter anderem hat er die Art nach beiden Geschlechtern beschrieben. Wenn meine Vermutung unrichtig ist und der Typus von *L. bifasciata* die obenerwaehte Querader besitzt, so muessen wir die von mir beschriebene und von F. W. Edwards angenommene Art umnennen, wie ich 1940 getan habe: *L. parbifasciata*.

20. *Lyophlaeba haywardi* Edw. ♂.

Edwards, Diptera, VII, 1934, 106.

Dem ganzen Habitus und der Groesse nach unterscheidet sich diese Art von *L. bifasciata* nur wenig, aber in Einzelheiten sehr stark. Der Ozellenhoecker ist hell behaart. Auf der Stirn befindet sich kein schwarzes Haar. Die Stirn ist weiss behaart, nur auf der Mitte verlauft ein gelbbeharter Laengsstreifen. Das 3. Fuehlerglied ist laenger als bei *bifasciata*, es ist fast 2 mal laenger als das 1. Fuehlerglied.

Der Thoraxruecken hat keine schwarzen Haare auf der vorderen Haelfte. Die Borsten des Thorax sind gelb, nicht roetlich. Die vordere Haelfte des Thoraxrueckens ist kurz, doch dicht, gelblich, abstehend behaart (bei *L. bifasciata* befinden sich hier anliegende Filzhaare). Die kraeftigeren, borstenaehnlichen Haare am Vorderrand sind wenig zahlreich, gelb, nicht roetlich. Das Schildchen ist schwarz, mit gelbem Aussenrand. Die Borsten der Thoraxseiten sind gelb.

Fluegel wie bei *L. bifasciata*, doch ist der helle Querstreifen oben etwas breiter; bei *bifasciata* nimmt er fast die ganze basale Haelfte der Discoidalzelle ein, hier nimmt er fast zwei Drittel derselben ein. Die Faerbung des Basalteils ist heller, besonders die Basis der beiden Balsalzellen und der Analzelle (dieses Merkmal stimmt nicht mit der Abbildung von *Macquart* ueberein; da aber die hellen Stellen nicht ganz durchsichtig sind, kann man voraussetzen, dass die Abbildung des Basalteils des Fluegels nur der Einfachheit wegen ganz dunkel dargestellt ist). Die ueberzaehlige Querader in der 1. Hinterrandzelle steht etwas hinter der Mitte des basalen Teils der 2. Submarginalzelle. Die aeusserst tiefe Ausbuchtung der 2. Laengsader ist etwas steiler zur Laengsachse des Fluegels gestellt als bei *L. bifasciata*.

Der Hinterleib ist deutlich verschieden von *L. bifasciata* gezeichnet: der mittlere goldgelb befaltzte Laengsstreifen fehlt hier gaenzlich. Die schwarzen Haare, welche bei *L. bifasciata* sehr zahlreich und grob sind, fehlen hier fast gaenzlich, nur auf den zwei letzten Segmenten befinden sich ziemlich gut bemerkbare schwarze Haare.

Fuer diese Beschreibung dienten mir zwei Maennchen von West-Argentinien und Chile, die mir in liebenswuerdiger Weise seinerzeit Dr. E. O. Engel (Muenchen) zum Studium gesandt hat.

Ich halte es auch fuer zweckmaessig, die Original-Beschreibung dieser Art anzufuehren: "Very much resembles *M. transandina*, having the same peculiarity of a cross-vein in the first posterior cell, but differing quite obviously as follows: third antennal segment slender and of almost even width throughout. Hair on front part of thorax above entirely light golden-yellow. Integument of scutellum all blackish. Integument of abdomen almost all black, only a little reddish at posterior corners of tergites, most obviously so on 5-7. Hair on sides of abdomen at base rather longer and brighter yellow (including that on tergite 1); pubescence on remainder of dorsum of abdomen black, without any median pale stripe. Legs darker. Wings with the dark markings rather more uniform, no obvious clearer area in third posterior cell, and only a very small one in first division of first posterior cell; dark area over anal vein rather more extensive. Length of body 20 mm., wing 19 mm. Type in British Museum from Patquia, La Rioja, Argentina, XII.1932-II.1933 (K. J. Hayward). The complete absence of the median stripe will distinguish this species from all others of the group."

21. *Lyophlaeba transandina* Edw. ♂, ♀.

Edwards, Diptera, VII, 1934, 105.

Syn.: *landbecki* van der Wulp, Tijdschr. voor Entomol. XXV, 1881, 86, tab. IX, fig. 12; *?argentinae* Param., Eos, XIII, 1940, 31.

Zu dieser Art rechne ich Exemplare mit folgenden Merkmalen: Der *L. haywardi* sehr aehnlich, doch kleiner, schmaeler und etwas dunkler gefaerbt. Der Ozellenhoecker ist schwarz behaart. Die Behaarung des Gesichts und der Stirn ist reinweiss, nur beim Weibchen hat dieselbe eine aeusserst leichte gelbliche Abtoenung. Alles uebrige fast wie bei *L. haywardi*. Der Scheitel beim Weibchen ist schmal, 2 mal breiter als der Ozellenhoecker, ein wenig kleiner als 1/7 der Kopfbreite. Die drei grauen Laengsstreifen auf

dem Thoraxruecken sind deutlicher bemerkbar als bei *L. haywardi*; bei der letzten sind sie nur angedeutet. Die Behaarung des Thoraxrueckens ist merklich grauer als bei *L. haywardi*. Geader und Fluegelzeichnung wie bei *L. haywardi*, doch sind die Basalhaelften der unteren Basal- und der Analzelle, sowie die Mitten der 1., 2. und 3. Hinterrandzelle nicht gelblich, sondern durchsichtig. Die Grenze der Fluegelzeichnung ist schaefer als bei *L. haywardi*. Auf dem Hinterleib befindet sich ein deutlicher grauer Laengsstreifen (die seitlichen sind ebenfalls anwesend); in dieser Hinsicht gleicht diese Art der *L. bifasciata*.

Koerperlaenge 14,5 mm. (bei *haywardi* 20 mm.), Fluegellaenge 17,5 mm. (bei *haywardi* 20 mm.). 3 ♂, 1 ♀, Capilla d. Monte Cordoba, Argent. coll. Prof. Hoseus; 1 ♀, Decembre, XII. Rep. Argentina, Chaco de Santiago del Estero, Rio Salado (Mus. Muenchen).

Edwards beschreibt diese Art folgenderweise: "Resembles *M. bifasciata* in most respects (including the reddish first antennal segment and scutellum, and the long proboscis) but smaller and more slender build. Third antennal segment with conical base, very slender on rather more than the distal half. Hair above base of antennae mostly white. Thorax (denuded) with three grey stripes on integument of mesonotum, the median stripe very narrow. Abdomen (denuded) with posterior corners of tergites more extensively reddish than in *bifasciata*, this colour forming a narrow posterior border to each segment. Legs largely reddish as in other species of this group. Wings much resembling those of *bifasciata*, but basal half of lower basal cell clear, a more definite clear area in first posterior cell, and dark cloud over anal vein confined to middle third. In both wings of all three specimens examined an adventitious cross-vein is present dividing the first posterior cell into two, a unique feature not seen in any other species of the *Comptosia* group. Length of body 13-16 mm., wing 15-18 mm. Type and 2 other ♂ in British Museum from Santiago del Estero, Argentina, 1907 (E. Wagner). — Since the above description was written I have examined two more males of this species, both in the British Museum from Patquia, La Rioja, Argentina (K. J. Hayward). One of these is in very perfect condition, and from it the following features may be noted: hair on front of thorax partly white and partly brownish. Scutellum clothed largely with black pubescence, but the margin and a small area at the base with yellowish pubescence. Abdomen with the red portions of the tergites clothed with decumbent

yellowish (buff-coloured) pubescence without any admixture of white except that the pubescence of the first tergite is white; each tergite also white with a median stripe of similar buff-coloured pubescence, the remainder of the dorsum with black pubescence."

Es ist sehr wahrscheinlich, dass ich diese Art 1940 als *L. argentinae* beschrieben habe. Ich habe mein Manuskript vor dem Erscheinen der Edwards'schen Arbeit nach Spanien gesandt; es blieb viele Jahre ungedruckt und ich war ueberzeugt, dass es verloren gegangen sei; erst 1943 erfuhr ich zufaellig, dass meine Arbeit schon 1940 gedruckt wurde.

Anmerkung. — Nachdem ich die Typen und Kotypen von *L. haywardi* und *L. transandina* im British Museum gesehen habe, glaube ich, dass die Selbstaeendigkeit von *L. haywardi* bewiesen ist: es gibt Exemplare von *L. transandina*, die fast so gross sind wie *L. haywardi*; ebenfalls befinden sich unter den Exemplaren von *L. transandina* Exemplare, welche keinen Medianstreifen auf dem Hinterleib haben.

Bestimmungstabelle der *Lyophlaeba*-Arten.

1. Pulvillen sehr schwach entwickelt, kaum $\frac{1}{6}$ der Krallenlaenge erreichend. Die dunkle Zeichnung der Fluegel ist besonders laengs den Adern entwickelt, deutliche Querbinden auf den Fluegeln oder laengliche Flecken fehlen gaenzlich (*lugubris*-Gruppe)..... 2.
- Pulvillen gut entwickelt, mehr als die Haelfte der Krallenlaenge einnehmend. Die Fluegel sind mit deutlichen dunklen Querbinden oder grossen Flecken versehen oder anders gezeichnet..... 3.
2. Die beiden Seiten der aeusserst starken Kruemmung der 2. Laengsader parallel liegend. Das 3. Fuehlerglied ist $1\frac{1}{2}$ mal laenger als die beiden ersten zusammen. Der Hinterleib ist unten schwarz behaart, von dem hellen medianen Filzstreifen der Oberseite findet man hier nur eine Spur. Die schwarze Zeichnung der Fluegel ist sehr gut entwickelt. Koerperlaenge 14 mm. Chile..... *lugubris* Rond. ♂, ♀.
- Die beiden Seiten der starken Kruemmung der 2. Laengsader sind nicht parallel, sondern stark divergierend. Das 3. Fuehlerglied ist $2\frac{1}{2}$ mal laenger als die beiden ersten zusammen. Der Hinterleib ist unten spaerlich, doch lang gelblich behaart, auf der Oberseite befinden sich drei deutliche gelbliche Laengsstreifen. Die dunkle Zeichnung des Fluegels ist viel schwaecher entwickelt. Koerperlaenge 10 mm. Chile *boliviana*. Param. ♂.
3. Der Vorderrand des Fluegels ist (bis zur 4. Laengsader, nur die Fluegelspitze freilassend) gleichmaessig dunkel gefaerbt, nur selten existiert ausserdem eine unvollstaendige dunkle Querbinde, welche durch die Spitze der Discoidalzelle verlauft (*koslowskyi*-Gruppe). 4.
- Der Fluegel hat dunkle und helle Querbinden, daher ist die Vorderrandlaengsbinde unterbrochen; niemals erstreckt sich die dunkle Faerbung bis zur 4. Laengsader, sondern maximal bis zur 3. Laengsader; wenn der Fluegel keine deutlichen Querbinden hat, ist die dunkle Vorderrandsbinde schwach entwickelt 5.

4. In der 1. Hinterrandzelle befindet sich weit hinter der Spitze der Discoidalzelle eine ueberzaehlige Querader. Eine grosse Art (Koerperlaenge 20 mm.). Chile..... *setosa* Param. ♀.
- In der 1. Hinterrandzelle befindet sich keine ueberzaehlige Querader. Eine kleinere Art (Koerperlaenge 11-13 mm.). Chile..... *koslowskyi* Edw. ♂, ♀.
5. 4 Submarginalzellen 6.
- 3 Submarginalzellen (*pictinervis*-Gruppe) 17.
6. In der 1. Hinterrandzelle befindet sich weit nach aussen von der Spitze der Discoidalzelle eine ueberzaehlige Querader..... 7.
- In der 1. Hinterrandzelle befindet sich keine ueberzaehlige Querader 8.
7. Das Schildchen ist in der Basalhaelfte schwarz. Der Medianstreifen auf der Oberseite des Hinterleibs ist voellig abwesend. Koerperlaenge 20 mm. Argentinien *haywardi* Edw. ♂.
- Das Schildchen ist roetlich, nur an der Basis schwarz. Auf der Oberseite des Hinterleibs befinden sich drei deutliche Laengsstreifen (zwei an den Seiten, eine in der Mitte). Koerperlaenge 13-16 mm. Argentinien *transandina* Edw. ♂, ♀.
8. Das 1. Fuehlerglied ist schwarz 9.
- Das 1. Fuehlerglied ist rotgelb oder gelb..... 11.
9. Die Behaarung der Fuehler ist gelbbraeunlich. Beine dunkelbraun, mit roetlicheren Schenkeln. Koerperlaenge 12,5 mm. Chile..... *blanchardi* Param. ♂, ♀.
- Die Behaarung der Fuehler ist weiss. Beine schwarz..... 10.
10. Koerperlaenge 17 mm. Chile..... *consobrina* Phil.
- Der *L. consobrina* sehr aehnlich, doch ist die Koerperlaenge nur 12 mm. Die Kruemmung der 2. Laengsader vor der Spitze ist viel schwaecher, nicht parallelseitig wie bei *consobrina*, sondern divergierend. Der Abstand des untersten Punktes vom Vorderrand ist deutlich weniger als der Abstand vom Hinterrand (bei *consobrina* das Gegenteil). Chile..... *minuta* Param. ♀.
11. Groessere Arten (Koerperlaenge 20-25 mm.). Die Behaarung der Stirn ist gelb. Die dunklen und hellen Querbinden auf dem Fluegel sind immer sehr gut ausgepraegt 12.
- Kleinere Arten (Koerperlaenge 13-17,5 mm.). Die Behaarung der Stirn ist weiss, wenn die Stirn gelb behaart ist, sind die Querbinden auf dem Fluegel sehr schwach ausgepraegt oder fehlen gaenzlich; die ganze Zeichnung ist laengs den Adern verteilt..... 13.
12. Koerperlaenge 25 mm. Auf dem Hinterleib befinden sich drei weissbehaarte Laengsstreifen. Chile *philippii* Param. ♂, ♀.
- Koerperlaenge 20 mm. Auf dem Hinterleib befinden sich drei goldgelbbehaarte Laengsstreifen. Chile..... *bifasciata* Macq. ♂, ♀.
13. Schildchen braunschwarz. Die untere Basalzelle ist durchweg gefaerbt. Koerperlaenge 15 mm. Chile *landbecki* Phil.
- Schildchen gelb; wenn es schwarz ist, befinden sich immer in der unteren Basalzelle helle Flecken (an der Spitze oder an der Basis oder an den belden erwachten Stellen) oder die untere Basalzelle ist ganz durchsichtig 14.
14. Der Fluegel traegt sehr gut ausgepraegte dunkle und durchsichtige Querbinden, obgleich die dunkle Faerbung nicht immer sehr dicht ist 15.
- Der Fluegel hat keine deutlichen dunklen Querbinden; die dunkle Faerbung konzentriert sich laengs den Adern und ist im allgemeinen schwach entwickelt 16.

15. Die 2. Laengsader ist in der Gegend der schraegen ueberzaehli-
 Querader so stark zum Vorderrand gekruemmt, dass der Abstand
 vom Vorderrand an der schmaelsten Stelle zweimal kleiner als die
 obenerwaehnte Querader ist. Fluegelzeichnung sehr dicht. Koerper-
 laenge 13 mm. Chile..... *chilensis* Param. ♂.
 — Die Kruemmung der 2. Laengsader ist geringer, der Abstand vom
 Vorderrand an der schmaelsten Stelle ist der Laenge der ueberzaehli-
 gen Querader fast gleich. Fluegelzeichnung nicht sehr dicht, doch
 deutlich *edwardsi*, n. sp.
16. Das Schildchen ist roetlichgelb. Koerperlaenge 15 mm. Die Brustseiten
 sind weisslich behaart. Auf den Seiten der 4 ersten Hinterleibs-
 segmente sind die Haare gelblich. Hinterleib braunschwarz, mit einer
 graugelblichen Abtoenung. Chile..... *pallipennis* Param. ♀.
 — Das Schildchen ist augenscheinlich schwarz. Koerperlaenge 17,5 mm.
 Die Seiten der Brust sind gelblich behaart. Die Haare an den Seiten
 des Hinterleibs sind schwarz. Der Hinterleib ist schwarz (abgerieben),
 mit schmalen weisslichen Raendern der Segmente. Chile.....
montana Philip.
17. Ruessel lang, die Spitze der Fuehler erreichend oder noch laenger
 (ein Merkmal, welches allen obenangefuehrten Arten gemein ist). Das
 1. Fuehlerglied ist nicht verdickt auf der Innenseite und ohne
 Haarbueschel auf der Spitze an der Innen- oder Unterseite. Der
 Thoraxruecken mit zwei (nicht drei) unscharfen Laengsstreifen.
 Schildchen schwarz. Chile (?)..... *manca* Edw. ♂, ♀.
 — Der Ruessel ist verhaeltnismaessig kurz, nur bis zur Spitze des 1.
 Fuehlerglieds reichend. Das 1. Fuehlerglied ist an der Spitze auf der
 Innenseite verdickt, mit einem bemerkbaren Haarbueschel an dieser
 Stelle 18.
18. Die Haare an der Fluegelbasis sind weiss. Die Behaarung des Thorax
 ist hauptsaechlich weiss oder weisslich 19.
 — Die Haare an der Fuehlerbasis sind braungelb oder gelblich. Die
 Behaarung des Thorax ist gelblich oder hellbraun..... 20.
19. Die Haare auf der Spitze des 1. Fuehlerglieds sind gelb. Fluegel-
 zeichnung schwach entwickelt. Die Querader, welche die 2. und 3.
 Laengsader verbindet, traegt keinen dunklen Fleck. Chile.....
canescens Philip.
 — Die Haare auf der Spitze des 1. Fuehlerglieds sind schwarz. Fluegel-
 zeichnung gut entwickelt. Die Querader zwischen der 2. und 3.
 Laengsader ist mit einem dunklen Fleck versehen. Chile.....
pictinervis Rond. ♂, ♀.
20. Die Adern, welche zum Hinterrand des Fluegels verlaufen, sind dunkel
 umsaeumt. Chile *bigoti* Edwards
 — Die Laengsadern der unteren Haelfte des Fluegels sind nicht dunkel
 umsaeumt. Chile *L. infumata* Phil.

**Notes on the Tropical American Species of Tipulidae (Diptera).
IV. The Primitive Hexatomini: Paradelphomyia, Austrolimnophila,
Epiphragma, LECTERIA, Polymera, and Allies.**

By Charles P. Alexander,
University of Massachusetts, Department of Entomology,
Amherst, Massachusetts.

(With 33 figures)

In continuation of the present series of reports I am here discussing the short series of genera and subgenera constituting the so-called primitive or generalized Hexatomini. As originally grouped by Osten Sacken and other early students of the family, the Hexatomini included those genera having a four-branched radius, usually with cell M_1 preserved, normally 16-segmented antennae, and the tibiae with distinct spurs. The condition of the radius as described holds in all but the most specialized types now referred to the tribe, that is, *Hexatoma* Latreille (in part), *Atarba* Osten Sacken (in part) and *Elephantomyia* Osten Sacken. More commonly than was at first believed, the antennae of several types show a fusion of two or more segments at the base of the flagellum, forming the so-called "fusion-segment" in *Epiphragma* and others. The loss of tibial spurs in several groups, as *Polymera*, *Atarba*, *Elephantomyia* and others, has very greatly weakened this character for taxonomic use. In the single genus *Lecteria*, discussed later, we find a very curious condition in the manner of loss of one of the radial branches and, at the same time, the presence or loss of the tibial spurs. The more primitive members of this tribe show the so-called broken arculus, that is, with the basal section of vein M atrophied, most of the genera herewith considered showing this character. Although relatively few in number of genera, this section of the Hexatomini is very rich in species in certain groups, as *Austrolimnophila*, *Epiphragma*, *Polymera*, and others, including some of the most characteristic elements in the Neotropical crane-fly fauna.

The following subtribes, genera and subgenera fall in this section.

Subtribes	Genera	Subgenera
Phyllolabaria-	<i>Paradelphomyia</i> Alexander:	<i>Oxyrhiza</i> de Meijere
Paradelphomyaria-	<i>Phyllolabis</i> Osten Sacken	
Epiphragmaria-	<i>Austrolimnophila</i> Alexander:	<i>Limnophilella</i> Alexander
		<i>Austrolimnophila</i> Alex.
	<i>Epiphragma</i> Osten Sacken	
	<i>Edwardsomyia</i> Alexander	
Limnophilaria-	<i>Lecteria</i> Osten Sacken:	
(in part)	Phyllolabis <i>Lecteria</i> Osten Sacken	
	Phyllolabis <i>Psaronius</i> Enderlein	
	<i>Pseudolimnophila</i> Alexander	
	<i>Polymera</i> Wiedemann:	<i>Polymera</i> Wiedemann
		<i>Polymerodes</i> Alexander

The remainder of the *Limnophilaria* will be discussed in Part V of this series of reports.

Phyllolabis Osten Sacken

Phyllolabis Osten Sacken, Bull U S. Geol. Surv., 3: 202; 1877.

Attention is here called to the probability of occurrence of members of this very isolated genus in the mountains of northern Mexico. About a dozen species are known from the Nearctic Region, virtually all being far western in distribution, with two species having been found in San Diego Co., California, within a few miles of the border of Baja California. It would seem certain that species would occur in the Sierra de Juarez and elsewhere across the border. Elsewhere in the world various species of *Phyllolabis* occur in northern Europe, western China and rather numerous in the Himalayan Region. An entirely typical species has been taken in Baltic Amber, dating the genus back to the Eocene.

The members of the genus are most readily told by the venation, vein R_2 being entirely atrophied and $m-cu$ lying far distad, at or close to the outer end of cell 1st M_2 . The wing of *Phyllolabis meridionalis* Alexander is shown (Fig. 1). The male hypopygium of the different species is much enlarged and complicated, providing excellent characters for the separation of the species.

Paradelphomyia Alexander

Adelphomyia of authors, nec Bergroth; Mittheil. Naturf. Ges. Bern für 1890: 134; 1891; (type *helvetica* Bergroth, = *punctum* Meigen; genus *Limnophila* Macquart). *Oxydiscus* de Meijere; Tijds. voor Ent., 56: 350; 1891, preoccupied by *Oxydiscus* Koken, 1889; (type *nebulosus* de Meijere). *Haploneura* Meunier (nec Osten Sacken, Loew); Bull. Soc. Ent. France, 1899: 393-394, fig.; 1899, preoccupied by *Haploneura* Kohl, 1884; (type *hirtipennis* Meunier). *Gonomyella* Kuntze; Deutsche Ent. Zeitschr., 1919: 141; 1919, preoccupied by *Gonomyella* Meunier, 1899; *Gonomyella* Alexander, 1917; (type *furcata* Kuntze). *Adelphomyia* (*Paradelphomyia*) Alexander; Philippine Journ. Sci., 60: 184; 1936; (type *crossospila* Alexander). *Oxyrhiza* de Meijere; Entomologische Berichten, 12, nos. 271-272: 68; 1946; (re-naming of *Oxydiscus* de Meijere, preoccupied).

The name *Paradelphomyia* was proposed for a single species from western China, the subgenus being based primarily on the presence of a supernumerary crossvein in cell R_3 of the wings. All other described species, lacking this crossvein, fall in the subgenus *Oxyrhiza* de Meijere, which appears to be the valid name for this section of the genus.

As regards the above synonymy, that concerning *Haploneura* had been discussed earlier by the writer (Bernstein-Forschungen 2: 92; 1931). Briefly, the name was first suggested by Loew (1850) without mention of a species; from his brief generic diagnosis it seems probable that he had intended this name for what we have called the subgenus *Palaeogonomyia* Meunier in the genus *Rhabdomastix* Skuse. Osten Sacken (Mon. Dipt. N. Amer., 4: 275-276; 1869), while examining the Loew Amber Diptera saw the type specimen of Loew's *Haploneura* and pronounced it to be an undoubted *Ula*, a genus that does not occur in Tropical America. In 1906, Meunier (Mon. Tipulidae Ambre Baltique, Ann. Sci. Natur. (Zool.), (9) 4: 389-390; 1906) validated the genus by name, description and figure, and this species is undoubtedly a member of the present group. Except for the earlier use of the name *Haploneura* by Kohl I would consider this to be the earliest valid name for the group. *Gonomyella* Meunier, as discussed earlier by the writer (Bernstein-Forschungen, 2: 101; 1931) evidently refers to the present genus *Ormosia* Rondani. The confusion in the names *Gonomyella* and *Gonomyiella* has been listed by Neave.

Antennae short in both sexes, normally 16-segmented; in certain species (as *cayuga* Alexander) at least the two basal flagellar segments completely united, together with a partial fusion of the third; flagellar verticils very long and conspicuous, much exceeding the segments in length). Eyes not hairy (as in most Pediciini). Head not narrowed behind. Praescutum with the tuberculate pits remote from the anterior border, lying only slightly cephalad of the level of the pseudosutural foveae. Legs

with the tibial spurs unusually variable; in cases with two long strong hairy spurs, in others a single weak spur, in still others (as *ecalcarata* Edwards) the spurs quite lacking. It seems probable that there will be found to be a different number of spurs on the various legs of at least certain of the species, as is common in the Tipulinae and others. Claws simple; empodia conspicuous. Wings with vein R_2 faint to virtually lost by atrophy; cell M_1 usually present, more rarely lacking (in some Nearctic species); anterior arculus present. The venation of *Paradelphomyia oaxacensis* (Alexander) is shown (Fig. 2). Apical cells of wings with strong macrotrichia. As noted by Edwards, 1938, the sclerites of the ninth abdominal segment of the male are united into a virtually continuous ring, with the suture mid-dorsal instead of mid-ventral, as usual in the family. Basistyle in cases produced caudad as a strong lobe or spine beyond the level of the point of insertion of the dististyles, which thus appear to be subterminal in position. Two dististyles, the outer one of characteristic shape, bearing three terminal and subterminal teeth that provide strong characters for the separation of the different species. Base of the phallosome generally bearing two elongate spines or processes, termed by Edwards the *ventral fork*, these providing excellent specific characters; this structure is sometimes lacking (as *nielsenii* Kuntze).

The genus is essentially Holarctic in distribution, with rather numerous species extending southward in the Himalayan Region of southeastern Asia virtually to Wallace's Line. A few further species are Ethiopian. In Tropical America there are relatively few forms, chiefly Mexican and Central American, with one occurring as far south as Ecuador. The group is an ancient one, with a species occurring in the Baltic Amber (Eocene).

In an earlier report (Cornell Univ. Agr. Expt. Sta. Mem. 38: 895; 1920), I erected the subtribe Adelphomyaria for this genus and placed it in the tribe Pediciini rather than with the Hexatomini where now assigned. This reference was made chiefly on the basis of the structure of the larva since the adult flies have retained most of the characters of the Hexatomini. In most recent treatments the group is placed in the latter tribe in a position indicating its relationship with the Pediciini (see Part VIII of this series of Notes).

The immature stages of *Paradelphomyia*, as known, are spent in saturated organic earth.

List of Species

- aequatorialis* (Alexander). — Ecuádor.
costaricensis (Alexander). — Costa Rica.
destituta (Alexander). — Costa Rica.
mexicana (Alexander). — Mexico.
mexicana acutissima (Alexander). — Mexico.
morelosensis (Alexander). — Mexico.
oaxacensis (Alexander). — Mexico.

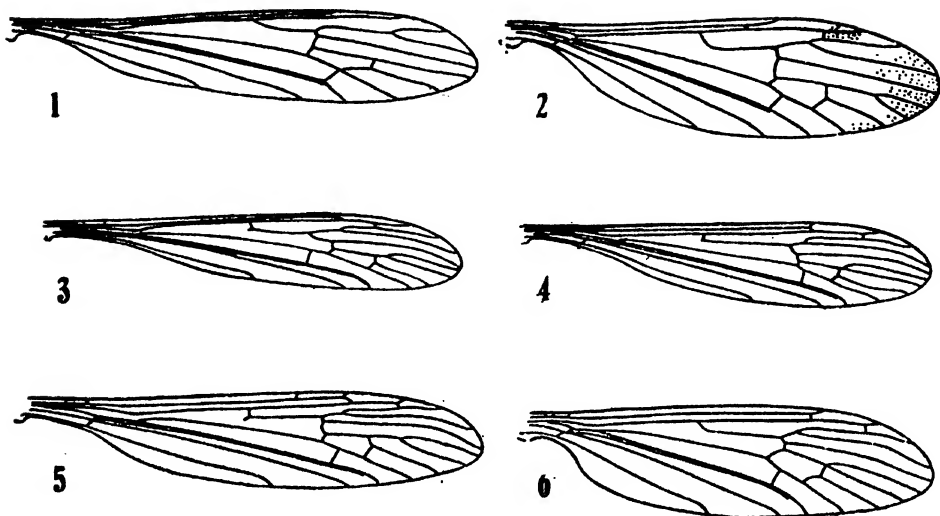


Fig. 1. *Phyllolabis meridionalis* Alexander; venation. — Fig. 2. *Paradelphomyia* (*Oxyrhiza*) *oaxacensis* (Alexander); venation. — Fig. 3. *Austrolimnophila* (*Limnophilella*) *schunkeana*, sp. n.; venation. — Fig. 4. *Austrolimnophila* (*Austrolimnophila*) *wygodzinskyi*, sp. n.; venation. — Fig. 5. *Epiphragma* (*Epiphragma*) *persancta* Alexander; venation. — Fig. 6. *Edwardsomyia chiloensis* Alexander; venation.

Austrolimnophila Alexander

Austrolimnophila Alexander; Arkiv för Zoologi, 13, Nr. 6: 4-5; 1920.
Polymoria Alexander (nec Philippi, 1865); Ann. Mag. Nat. Hist., (9) 13: 367; 1924.

Head broad, not narrowed behind. Antennae 16-segmented, short to very long; in the latter cases, flagellar segments long-cylindrical, usually with short verticils, in still other species the verticils of the outer segments long and conspicuous; no fusion of basal flagellar segments as in *Epiphragma*. Mesonotum without tuberculate pits; pseudosutural foveae small, marginal in position; praescutal dorsocentral setae well developed. Legs with tibial spurs distinct; claws simple. Wings clear or variously patterned, banded or dotted but only rarely with an ocelliform distribution of markings, the common condition in the allied genus *Epiphragma*. Venation: Sc_2 near tip of Sc_1 ; Sc usually long, shortest in *celestissima* where Sc_1 ends about opposite midlength of Rs ; Rs long, angulated and often spurred near origin, in cases this

spur very long; R_{1-2} and R_2 commonly of nearly equal length or the former a little longer, in *inquieta* and some others with R_{1-2} elongate; R_{2-3-4} usually short; R_2 usually on vein R_3 , with an element R_{2-3} developed; in *celestissima*, R_2 is placed before cell R_3 , there being a short element R_{3-4} ; anterior cord approximately transverse; cell 1st M widened outwardly; cell M_1 usually deep to very deep, the petiole correspondingly shortened, reaching its culmination in species such as *persessilis* where cell M_1 is sessile or virtually so; position of *m-cu* very variable, ranging from species having this at midlength of cell 1st M_2 to others where it lies at or close to the fork of M ; the extreme recession of *m-cu* in the entire tribe is found in species of the subgenus *Limnophilella*, culminating in the subspecies *retractor* (of *inquieta*) where the crossvein is from four to five times its own length before the fork of M or nearly opposite the base of the unusually long R_s ; anterior arcus lacking or its position barely indicated, as in *tunguraguensis*. In some species, supernumerary crossveins in certain of the cells, in *multipicta* in cell R_3 , in *bifidaria* and *caparaensis* in cell M_1 . The venation of two species is shown, *schunkeana* (Fig. 3), *wygodzinskyi* (Fig. 4). Abdominal tergites with faintly impressed transverse lines, somewhat as in *Epiphragma*. Male hypopygium showing a great diversity of structure, especially noteworthy when compared with the very uniform pattern commonly found in *Epiphragma*. Ninth tergite with the caudal margin variously bilobed. In cases a single dististyle (*merklei*, Fig. 13), usually with two such styles, of various forms. Interbase present and variously shaped in the different species, usually simple, in some species forked at apex. To show the range of structure in the local fauna, the male hypopygia of several previously unfigured species are shown herewith. (Figs. 7-18, inclusive).

The genus *Austrolimnophila* is essentially Antipodal in distribution, with the great majority of the rather abundant species in Australasia (Australia, New Zealand, New Caledonia, New Guinea and elsewhere) and in Tropical America. Fewer species occur in Africa while still fewer forms are found in the northern hemisphere of both the old and the new worlds. The distribution of the Neotropical species is shown by the list of species. From this it will be seen that members of the genus are particularly numerous in the Chilean and Brazilian subregions but there are rather numerous species occurring far to the north, especially along the Andean chain.

The early stages, as recorded for various species in Australia, New Zealand and the Holarctic Region, are spent in decaying wood, quite as in *Epiphragma*.

Subgenus *Limnophilella* Alexander

Limnophila (*Limnophilella*) Alexander; Journ. N. Y. Ent. Soc., 27: 146; 1919; (type *epiphragmoides* Alexander).

The members of this subgenus are defined chiefly on the recession of *m-cu*, as discussed under the generic account. This character has been deemed to be of importance in other subtribes of the primitive Hexatomini, as the *Dactylolabaria*, and presumably has some significance here. Correlated with the venational character is found an increased complexity in structure of the male hypopygium (Fig. 7, *multipicta*; Fig. 8, *patagonica*; Fig. 9, *schunkeana*).

List of Species

caparaoensis Alexander. — Southeastern Brazil.
diversipes (Alexander). — Ecuador, Peru.
epiphragmoides (Alexander). — Eastern Brazil.
inquieta Alexander. — Ecuador.
inquieta retractior Alexander. — Ecuador.
multipicta Alexander. — Southeastern Brazil.
patagonica (Alexander). — Patagonia, South Chile.
schunkeana, sp. n. — Amazonian Peru.
subvictor, sp. n. — Costa Rica.
victor (Alexander). — Panama.

Subgenus *Austrolimnophila* s. s.

List of Species

acutergata Alexander. — Southeastern Brazil.
bifidaria Alexander. — Southeastern Brazil.
bradleyi Alexander. — Northern Argentina.
candiditarsis Alexander. — Southeastern Brazil.
celestissima Alexander. — Chile.
comantis, sp. n. — Southeastern Brazil.
dušeni Alexander. — South Chile.
elnora Alexander. — South Chile.
eutaeniata (Bigot). — Tierra del Fuego.
fuscohalterata Alexander. — South Chile.
hazelae Alexander. — Patagonia, South Chile.
infidelis Alexander. — South Chile.
iris Alexander. — South Chile.
joana Alexander. — South Chile.
merklei Alexander. — Patagonia, South Chile.
michaelseni Alexander. — Tierra del Fuego.
microspilota Alexander. — Southeastern Brazil.
microsticta Alexander. — South Chile.
nematocera Alexander. — Ecuador (position in genus doubtful).

- nympha* Alexander. — Ecuador.
oroensis Alexander. — Ecuador.
pacifera Alexander. — Southeastern Brazil.
pallidistyla Alexander. — Southeastern Brazil.
pallidistyla perlimbata Alexander. — Southeastern Brazil.
persessilis Alexander. — Ecuador.
platensis (Alexander). — Southeastern Brazil, Argentina.
polyspilota Alexander. — Southeastern Brazil.
punctipennis (Philippi). — South Chile.
spinicaudata Alexander. — Southeastern Brazil.
subpacifera Alexander. — Southeastern Brazil.
tenuilobata Alexander. — Southeastern Brazil.
tremula Alexander. — South Chile.
tunguraguensis Alexander. — Ecuador.
varitarsis Alexander. — South Chile.
vivas-berthieri Alexander. — Venezuela.
wygodzinskyi, sp. n. — Southeastern Brazil.
xanthoptera Alexander. — South Chile.
xanthoptera cayutuensis Alexander. — South Chile.

Austrolimnophila (*Limnophilella*) *multipicta*
 Alexander

Austrolimnophila (*Limnophilella*) *multipicta* Alexander; Rev. de Entomologia, 40: 433-434, fig. 3 (venation); 1939.

The type was from Nova Teutonia, Santa Catharina, collected by Plaumann. Since its original discovery, the species has been found to be relatively common at the type locality. Male hypopygium (Fig. 7) with the tergite, *9t*, large, narrowed outwardly to appear gently convex; on either side of a shallow median emargination with a slender lobe that is tufted with short microscopic setulae. Margin of sternite bearing a low obtuse lobe. Basistyle, *b*, on mesal face near proximal end produced into an obtuse lobe that is densely and regularly set with small points and accompanying setae to produce a squamose appearance; near apex of style opposite the point of insertion of the dististyles with a brush of long dark setae. Interbase, *i*, appearing as a strong arm that is bent at a right angle at near midlength, thence produced into a long straight spike, the outer angle at point of angulation appearing as a rounded knob. Dististyles distinctive, the outer, *od*, a long pale fleshy lobe bearing on mesal face at base a further long slender arm, at its apex narrowed into a spine; mesal face of outer lobe with abundant very long yellow setae from conspicuous punctures and interspersed scabrous points. Inner dististyle, *id*, shown separately, very broad at base, narrowed to a compressed blade, its surface with abundant microscopic punctures.

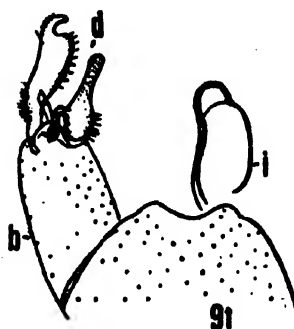
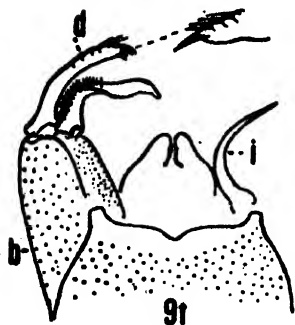
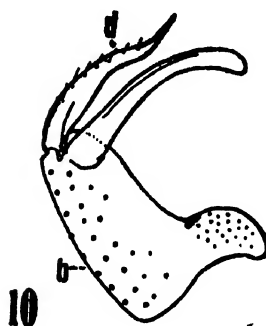
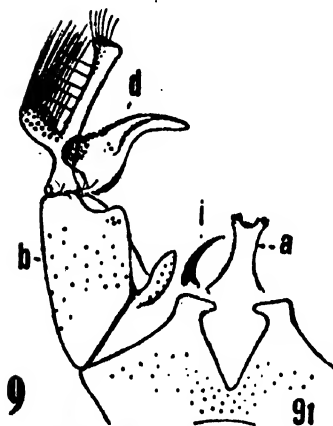
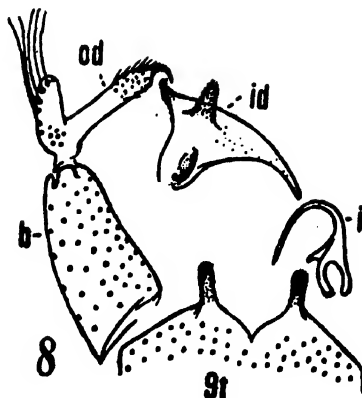
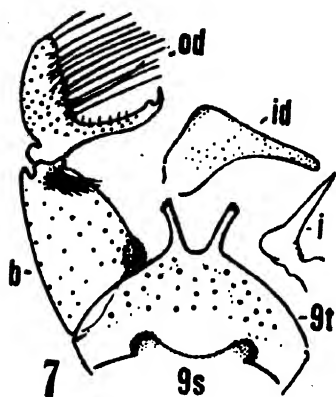


Fig. 7. *Austrolimnophila* (*Limnophilella*) *multipicta* Alexander; male hypopygium. —
 Fig. 8. *Austrolimnophila* (*Limnophilella*) *patagonica* Alexander; male hypopygium. —
 Fig. 9. *Austrolimnophila* (*Limnophilella*) *schunkeana*, sp. n.; male hypopygium. —
 Fig. 10. *Austrolimnophila* (*Austrolimnophila*) *bradleyi* Alexander; male hypopygium. —
 Fig. 11. *Austrolimnophila* (*Austrolimnophila*) *eutaeniata* (Bigot); male hypopygium. —
 Fig. 12. *Austrolimnophila* (*Austrolimnophila*) *hazelae* Alexander; male hypopygium. —
 (Symbols: a, aedeagus; b, basistyle; d, dististyles; i, interbase; id, inner dististyle; od, outer dististyle; t, tergite).

Austrolimnophila (Limnophilella) schunkeana,
sp. n.

General coloration of mesonotum dark brown, the pleura pale yellow; antennae short; anterior vertex very narrow; femora yellow, the tips blackened; tibiae and tarsi yellowish white; wings whitish subhyaline, with a heavy brown pattern that is chiefly ocelliform; *m-cu* at least its own length before the fork of *M*; male hypopygium with the outer dististyle conspicuously bifid, the outer arm a large oval lobe that bears unusually long setae, the inner arm a straight rod; interbases appearing as slender horns.

Male. — Length, about 10.5 mm.; wing, 10 mm.; antenna, about 2.1 mm.

Rostrum brown; palpi dark brown. Antennae (male) relatively short, as shown by the measurements; scape brown, pedicel yellow; flagellar segments pale yellowish brown, becoming linear, with very long verticils. Head with front and anterior vertex gray, the posterior vertex pale brown, the orbits and genae again light gray; extreme occipital region above with paired dark brown spots; anterior vertex very narrow, only about one-third the diameter of scape, the eyes correspondingly large.

Pronotum dark brown above, paling to yellow on sides. Mesonotum almost uniformly dark brown, the lateral borders of the praescutum restrictedly pale. Pleura and pleurotergite almost uniformly pale yellow, the ventral sternopleurite a very little darker. Halteres very long, dark brown, the base of stem narrowly yellow. Legs with the coxae and trochanters yellow; femora yellow, the tips rather broadly and conspicuously blackened, involving about the distal eighth of the segment; tibiae and tarsi pale yellowish white. Wings (Fig. 3) whitish subhyaline, with an extensive and handsome yellow and brown ocelliform pattern, the ocelli with yellow centers and pale brown margins; ocelli located at origin and fork of *Rs*, along cord, outer end of cell *1st M*₂, at ends of all longitudinal veins, those at and before wing tip confluent, forks of *R*₂₋₃₋₄ and *M*₁₋₂; outer radial field in cells *R*₁ and *R*₃ almost uniformly covered by confluent ocelliform areas; cells *C* and *Sc* more uniformly darkened, interrupted by pale near base and apex; prearcular field chiefly dark brown; costal darkenings almost solidly dark brown; veins brown, scarcely darker in the patterned areas. Venation: *Rs* long, angulated and spurred at origin; *Sc*₁ ending about opposite the

fork of R_{2-3-4} , Sc_2 longer, near its tip; R_{2-3-4} about three-fourths as long as R_{1-2} ; cell R_4 lying more basad than the other elements of cord; cell M_1 deep, nearly five times its petiole; $m-cu$ its own length or more before the fork of M .

Abdominal tergites dark brown, the posterior and lateral margins narrowly paler; sternites extensively pale yellow, each with a narrow brown ring shortly beyond base; segments eight and nine dark brown, the styli somewhat paler. Male hypopygium (Fig. 9) with the tergite, $9t$, large, the caudal border with a deep V-shaped emargination, the lateral lobes directed strongly mesad. Basistyle, b , on mesal face near proximal end with a pale flattened lobe that bears relatively few setae; interbase, i , appearing as a simple curved spine or slender horn. Dististyles, d , two; outer style conspicuously bifid, its outer arm a large oval lobe that is abundantly provided with setae, some of which are of unusual length; inner arm a straight, nearly parallel-sided rod, a little expanded at apex, with scattered elongate setae along the upper edge and with a concentration of bristles at the truncated apex; inner dististyle a flattened blade bearing a large obtuse posterior lobe, the surface of which is microscopically scabrous; rostral portion of style gently curved flattened. Aedeagus, a , at apex strongly emarginate, the lateral lobes with a few coarse lobules.

Habitat: Peru.

Holotype, ♂, Pucallpa, Rio Ucayali, Loreto, October 29, 1946 (José M. Schunke).

I am very pleased to name this distinct fly for the collector, Mr. José M. Schunke, to whom I am indebted for many interesting Tipulidae from the Upper Amazons. From the other allied members of the subgenus, this fly is readily told by the ocelliform pattern of the wings and by all details of structure of the male hypopygium. Such allied species include *epiphragmoides*, *inquieta*, *multipicta* and *victor*, as listed above.

Austrolimnophila (Limnophilella) patagonica
(Alexander)

Limnophilella patagonica Alexander; Journ. N. Y. Ent. Soc., 36: 51; 1928.

Bariloche, Rio Negro, Patagonia, April 1922 (A. Merkle); Cayatue, Llanquihue, Chile, March 10, 1938 (K. Wolffhügel); Valdivia, Chile, April 9-11, 1920 (J. C. Bradley). Male hypopygium (Fig. 8) with the caudal margin of the ninth tergite, $9t$, produced into two relatively slender straight darkened lobes that are densely setuliferous. Interbase, i , an unusually long

slender curved spine. Dististyles very complex, as in the subgenus; outer style, *od*, a long straight rod that terminates in a slender curved spine, the surface of this rod with numerous coarse setae; at base of style with a stout darkened lobe that bears a few (about 7 or 8) unusually long yellow setae, these fully one-half longer than the lobe itself; smaller, more normal setae nearer the base of lobe; inner dististyle (shown separately in figure), *id*, a larger triangular blade, the beak long extended, the outer apical angle a slender setuliferous lobe; on face of style at near the center with a stouter lobe bearing abundant setulae.

Austrolimnophila (Limnophilella) subvictor, sp. n.

General coloration of head and notum dark brown, the thoracic pleura yellow; antennae dark brown, the verticils of the outer segments very long and conspicuous; halteres elongate; wings narrow, pale brown, with a heavy darker brown pattern, the areas not or scarcely confluent; cell *2nd A* narrow; abdominal tergites dark brown.

Male. — Length, about 9 mm.; wing, 10 mm.

Rostrum obscure yellow; palpi dark brown. Antennae dark brown; flagellar segments subcylindrical to long-cylindrical, some of the verticils of the outer segments very long, approximately two and one-half times as long as the segment itself. Head dark brown, sparsely gray pruinose; anterior vertex narrow, less than the diameter of the scape.

Thoracic dorsum almost uniformly dark brown, the praescutum without pattern, postnotum somewhat more pruinose. Pleura yellow, the dorsal pleurites and the pleurotergite more infuscated. Halteres very long, dark brown. Legs with the coxae and trochanters yellow; femora and tibiae light brown; tarsi broken. Wings much narrower than in *victor*; general coloration pale brown, with a relatively heavy darker brown pattern, the areas arranged about the same as in *victor* but much smaller and not tending to become confluent with adjoining areas, the alternating ground markings correspondingly large and conspicuous. Venation: Much as in *victor* but the cells narrower, especially cell *2nd A*.

Abdomen elongate; tergites dark brown; basal sternites yellow, the intermediate ones more or less ringed with dusky; outer segments, including hypopygium, brownish black. Male

hypopygium with only the tergite preserved; large, its caudal border with a broad U-shaped notch, the lateral lobes obtuse; before apex near mesal edge of each lobe with a darkened cylindrical lobule that is tipped with a dense group or brush of setae.

Habitat: Costa Rica.

Holotype, ♂, La Suiza, April 1922 (Pablo Schild); my collection, through the kindness of Dr. A. L. Melander.

The most similar species is *Austrolimnophila* (*Austrolimnophila*) *victor* (Alexander), which differs especially in the broader wings with the brown pattern unusually heavy, as compared above.

Austrolimnophila (*Austrolimnophila*) *bradleyi*
Alexander

Austrolimnophila bradleyi Alexander; Journ. N. Y. Ent. Soc., 37: 93-95; 1929.

The type was from the Parque Aconquija, Tucuman, Argentina, taken in February 1920, by Dr. J. Chester Bradley. Male hypopygium (Fig. 10) with the basistyle, *b*, on mesal face at proximal end produced into a flattened cultrate blade, dark in color, margined with pale. Outer dististyle, *d*, an elongate rod that gradually narrows into a long terminal spine; outer margin of style with numerous long pale setae from small pale punctures. Inner dististyle a much longer and more compressed blade, the apex obtuse.

Austrolimnophila (*Austrolimnophila*) *comantis*, sp. n.

Allied to *polyspilota*; mesonotum almost entirely brownish yellow, the cephalic portion of the praescutum infuscated; antennae with the pedicel and flagellum yellow; femora yellow, the tips conspicuously blackened; wings grayish subhyaline, with an abundant dotted and spotted brown pattern, more numerous and more or less confluent in the cells of the anterior half of wing; R_{2-3-4} and the basal section of R_5 subequal in length; *m-cu* at from two-fifths to one-half the length of cell 1st M_2 ; male hypopygium having the tergite with a relatively small V-shaped notch, the lateral lobes not or scarcely produced into a point; outer dististyle clothed with abundant long delicate setae, the apex abruptly narrowed into a small curved spine; inner dististyle a flattened blade that is slightly dilated beyond midlength.

Male. — Length, about 9-9.5 mm.; wing, 10-11 mm.; antenna, about 2.1-2.2 mm.

Female. — Length, about 11-12 mm.; wing, 12-13 mm.

Rostrum brown; palpi darker brown. Antennae with the scape dark brown; pedicel and flagellum yellow; flagellar segments long-oval, the longest verticils much exceeding the segments in length, unilaterally distributed. Head light brown, sparsely pruinose; anterior vertex narrow.

Pronotum brown above, paling to yellow on the sides. Mesonotum almost entirely brownish yellow, the cephalic portion of the praescutum infuscated. Pleura and pleurotergite uniformly pale yellow, unpatterned. Halteres elongate, stem yellow, knob infuscated. Legs with the coxae and trochanters yellow; femora yellow, the tips conspicuously blackened, the amount subequal on all legs, including about the distal eighth of segment; tibiae and tarsi pale yellow, the terminal tarsal segment blackened. Wings grayish subhyaline, with an abundant dotted and spotted brown pattern occupying most of the cells, more numerous and becoming more or less confluent in the cells of the anterior half of wing; on posterior half, these areas more sparse, especially in cells *Cu* and *1st A*; veins brown, a trifle darker in the patterned areas. Venation: *Sc* long, both *Sc*₁ and *Sc*₂ beyond the fork of *R*₂₋₃₋₄; *Rs* square and more or less spurred at origin; *R*₂₋₃₋₄ and basal section of *R*₅ subequal in length or the latter slightly shorter; *R*₁₋₂ and *R*₂₋₃ both long, subequal; petiole of cell *M*₁ short, subequal to or a little longer than *m*; *m-cu* at from about two-fifths to one-half the length of cell *1st M*₂.

Abdominal tergites of male dark brown, the posterior borders of the basal four segments narrowly pale; outer segments and hypopygium more uniformly brownish black; sternites light yellow, their bases restrictedly infuscated. In female, tergites somewhat paler brown. Ovipositor with cerci relatively slender, somewhat angularly upturned at near two-thirds the length. Male hypopygium with the ninth tergite large, its caudal margin with a relatively small V-shaped notch, the broad lateral lobes not or scarcely produced into a point. Outer dististyle clothed with abundant long delicate setae, most conspicuous on the inner face; apex of style abruptly produced into a small curved spine. Inner dististyle a flattened blade, beyond midlength somewhat dilated, thence gradually narrowed to the obtuse tip. Interbase a slender curved spine-like rod. In *polysticta*, the emargination of the tergite is larger and the lateral lobes are produced into small points. Outer dististyle with its outer angle produced into a larger

and more conspicuous spine; inner style long and slender, gradually narrowed to the obtuse tip.

Habitat: Southeastern Brazil.

Holotype, ♂, Theresopolis, Rio de Janeiro, altitude 1000 meters, October 1942 (Lauro Travassos Filho); returned to Souza Lopes. Allotopotype, ♀. Paratopotypes, ♂ ♀.

The most similar described regional species is *Austrolimnophila* (*Austrolimnophila*) *polyspilota* Alexander (Rio to Paraná), which, while generally similar, differs in important details of coloration and, especially, in the structure of the male hypopygium, including the tergite and both dististyles, as compared above.

Austrolimnophila (*Austrolimnophila*) *eutaeniata*
(Bigot)

Limnophila eutaeniata Bigot; Miss. Scient. Cap Horn, Zool., 6: 9, pl. 2, fig. 3; 1888.

Rio Azopardo, near Admiralty Sound, Tierra del Fuego, March 1896 (Ohlin).

Male hypopygium (Fig. 11) with the tergite, *9t*, large, transverse, the outer lateral angle produced into a small subrectangular lobe, the broad space between these lobes with a rounded median notch. Basistyle, *b*, with the interbase a simple gently curved sclerotized horn or spine, narrowed very gradually into a long straight spine. Outer dististyle, *d*, a gently curved yellow rod, the apex suddenly narrowed into a blackened spine, before the tip with several strong yellow setae; outer margin of the distal fourth transversely corrugated. Inner dististyle fully as long, bent at a right angle at near one-third its length, the basal portion on outer surface with abundant erect pale setae; outer two-thirds more or less flattened, ribbon-like, the apex more slender, narrowly obtuse.

Austrolimnophila (*Austrolimnophila*) *hazela*
Alexander

Austrolimnophila hazela Alexander; Dipt. Patagonia and S. Chile, 1: 125-126, pl. 3, fig. 51 (wing); 1929.

Correntoso, Patagonia, November 18-25, 1926 (Edwards); Cayutue, Llanquihue, Chile, January 15, 1933 (E. P. Reed); Castro, Chiloë Island, Chile, December 20-22, 1926 (Edwards); Aysen, Chile, February 1934 (Pirion). Male hypopygium (Fig. 12) with the tergite very large, narrowed outwardly, the caudal margin with two lobes that are separated by an evenly rounded notch. Interbases, *i*, lying close to the midline of body, appearing

as flattened blades with obtusely rounded tips, the margin thickened and giving the appearance of a low terminal hook. Outer dististyle, *d*, a flattened blade, terminating in a strong lobe, its tip subobtuse, not spinous, with setae on the outer margin for about two-thirds the length of the lobe; other groups of setae along the dilated inner or lower margin of style and again on the subbasal swelling of the outer face. Inner dististyle nearly as long, the base dilated, conspicuously hairy, the outer half or more narrowed, straight, the tip obtuse.

Austrolimnophila (Austrolimnophila) merklei
Alexander

Austrolimnophila merklei Alexander; Journ. N. Y. Ent. Soc., 36: 50-51; 1928.

Bariloche, Rio Negro, Patagonia, April 1922 (Merkle); Termas Rio Blanco, Cura Cautin, Chile, altitude 1050 meters, March 30, 1938 (Bullock). Male hypopygium (Fig. 13) with the tergite, *9t*, transverse, the central region produced slightly caudad, on either end of the produced portion with a small fleshy lobe, the space between truncate. Basistyle, *b*, simple, on mesal face near apex with a concentration of long setae. Interbase, *i*, appearing as a long curved hook. A single dististyle, *d*, that is strongly bilobed into a more elongate beak and a stouter axial lobe, the latter further bearing a strong black spine on outer margin before apex; disk of style near base of axial lobe with several setae of unusual length.

Austrolimnophila (Austrolimnophila) microsticta
Alexander

Austrolimnophila microsticta Alexander; Dipt. Patagonia and S. Chile, 1: 119-121, pl. 3, fig. 49 (wing); 1929.

Peulla, Chile, December 12-13, 1926 (Edwards); Cayutue, Llanquihue, January 15, 1933 (E. P. Reed), November 13, 1935 (Wolffhügel). Male hypopygium (Fig. 14) with the tergite, *9t*, transverse, the lobes of the caudal margin very low and rounded. Interbase, *i*, appearing as a straight slender rod from a dilated base, at tip forking into two recurved slender spines. Basistyle, *b*, relatively long and slender. Outer dististyle, *d*, a relatively broad flattened blade, at apex suddenly narrowed into a strong curved spine, the surface of style with a lateral setiferous flange. Inner dististyle a slightly larger flattened blade, the apex widened, obtuse. Phallosome, *p*, with the aedeagus stout, straight, subtended by the large triangular apophyses.

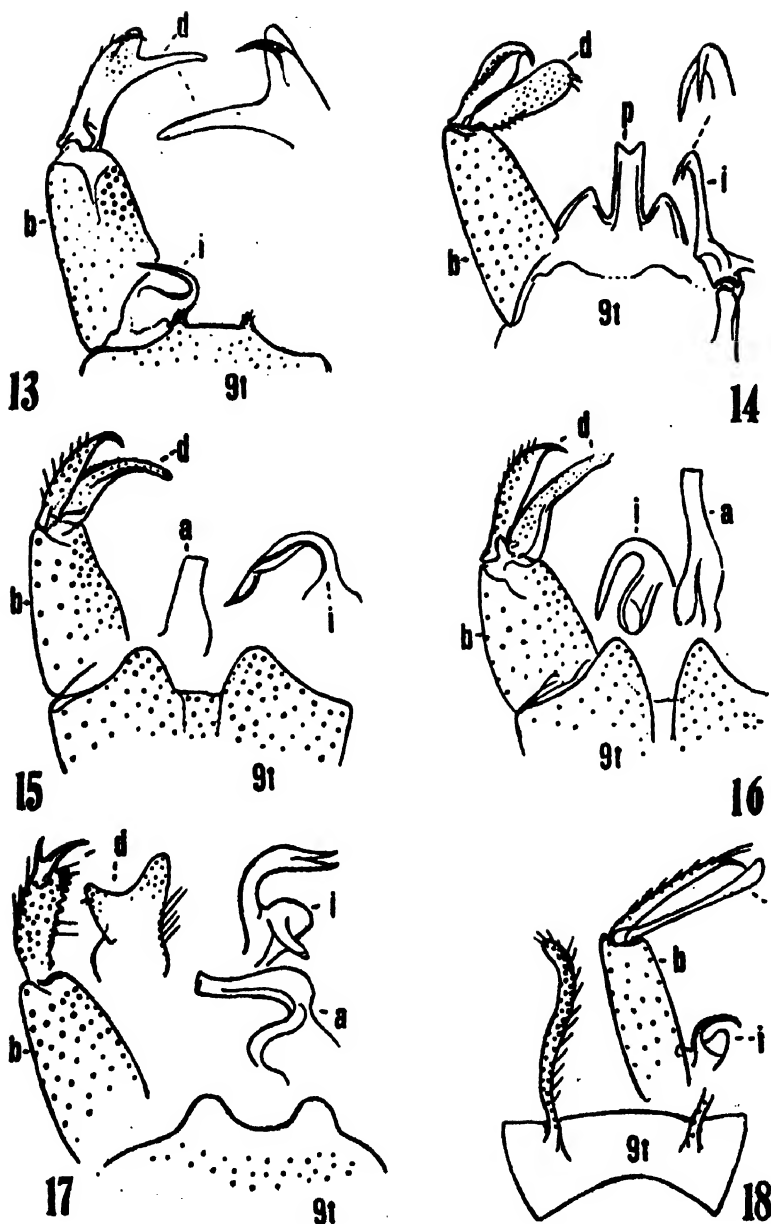


Fig. 13. *Austrolimnophila* (*Austrolimnophila*) *merklei* Alexander; male hypopygium. — Fig. 14. *Austrolimnophila* (*Austrolimnophila*) *microsticta* Alexander; male hypopygium. — Fig. 15. *Austrolimnophila* (*Austrolimnophila*) *nympha* Alexander; male hypopygium. — Fig. 16. *Austrolimnophila* (*Austrolimnophila*) *persessilis* Alexander; male hypopygium. — Fig. 17. *Austrolimnophila* (*Austrolimnophila*) *platensis* (Alexander); male hypopygium. — Fig. 18. *Austrolimnophila* (*Austrolimnophila*) *wygodzinskyi*, sp. n.; male hypopygium. — (Symbols: a, aedeagus; b, basistyle; d, dististyles; i, interbase; p, phallosome; t, tergite).

Austrolimnophila (Austrolimnophila) nympha
Alexander

Austrolimnophila nympha Alexander; Journ. N. Y. Ent. Soc., 51: 206-208; 1943.

Rio Zamora, Zumbi, Loja, Ecuador, altitude 700 meters, November 2, 1941 (Laddey). Male hypopygium (Fig. 15) with the tergite, *9t*, blackened, the caudal margin produced into two obtuse lobes that are separated by a much broader median emargination. Basistyle, *b*, whitened; interbase, *i*, strongly twisted, as shown. Two dististyles, *d*, both terminal; outer style slender, gradually narrowed into a strong curved apical spine; inner style a trifle longer, subangularly bent beyond midlength, narrowed to the obtuse apex; outer margin on basal portion with short erect to slightly retrorse bristles; side of style on outer half with a flange.

Austrolimnophila (Austrolimnophila) persessilis
Alexander

Austrolimnophila persessilis Alexander; Ann. Mag. Nat. Hist., (11) 3: 200-201; 1939.

Abitagua, Napo-Pastaza, Ecuador, altitude 1200 meters, September 21, 1937 (Macintyre); a further topotype male, altitude 1100 meters, March 18, 1940 (Macintyre) which is discussed herewith. Male hypopygium (Fig. 16) with the tergite, *9t*, deeply divided medially, the lateral lobes moderately produced; surface of tergite with long coarse scattered setae. Interbase, *i*, a simple, very strongly curved hook. Outer dististyle, *d*, relatively narrow, gently widened outwardly, terminating in a strong curved blackened spine; outer surface of style with scattered elongate setae; inner style a little longer, narrowed to the paler obtuse tip; surface with scattered pale setae from small tubercles.

Austrolimnophila (Austrolimnophila) platensis
(Alexander)

Limnophila platensis Alexander; Ent. News, 34: 184-185; 1923.

Rio Blanco, La Plata, Argentina, April-May 1920 (Bruch); Rio Negro, Parana, Brazil, April 25, 1945 (Witte). Male hypopygium (Fig. 17) with the tergite, *9t*, broad, narrowed outwardly, the caudal margin glabrous and darkened, with two rounded lobes that are separated from one another by a slightly wider notch. Basistyle, *b*, simple. Outer dististyle, *d*, narrowed into a strong apical spine, at base of which on outer margin,

with a smaller erect spine; outer surface of style with abundant delicate setulae and scattered coarse setae, with fewer such bristles on the lower face. Inner dististyle a very broad flattened blade that bears a strong broad-based lobe on its margin, the tip of the main axis obtusely rounded (style shown separately in figure). Interbase, *i*, terminating in two acute spines.

Austrolimnophila (*Austrolimnophila*)
wygodzinskyi, sp. n.

Allied to *candiditarsis*; general coloration of mesonotum pale brown, sparsely pruinose, the praescutum with three inconspicuous yellowish brown stripes; antennae short, flagellar segments with a series of very long verticils; legs pale brown, tarsi and tips of tibiae snowy white; wings whitish subhyaline, restrictedly patterned with brown; male hypopygium with a long sinuous pale lobe arising from near the suture between the ninth tergite and ninth sternite; both dististyles very long and slender.

Male. — Length, about 9 mm.; wing, 9 mm.; antenna, about 1.6 mm.

Rostrum brown; palpi brownish black. Antennae relatively short; scape and pedicel yellow, flagellum pale brown; flagellar segments oval to long-oval, with an outer series of unusually long verticils, one to each segment, the longest more than three times the segment. Head gray; anterior vertex narrow, less than the diameter of scape.

Pronotum testaceous yellow. Mesonotal praescutum light gray with three inconspicuous confluent yellowish brown stripes; posterior sclerites of notum pale brown; pleurotergite paler, light gray pruinose. Pleura reddish yellow, sparsely pruinose. Halteres destroyed by ants. Legs with the coxae and trochanters yellow; femora obscure brownish yellow; tibiae pale brown, the tips, including about the outer third or fourth, snowy white; tarsi similarly whitened throughout. Wings (Fig. 4) whitish subhyaline, with a relatively inconspicuous pale brown pattern, arranged as follows: Arculus; origin of *Rs*; cord and outer end of cell 1st *M*₂; stigma, continued backward across cell *R*₃; a second darkening near outer end of cell *R*₃; a seam over outer two-thirds of vein *R*₅, confluent with the area at outer end of cell 1st *M*₂; veins brown. Stigma hairy on both sides of vein *R*₂. Venation: *Sc*₁ ending beyond fork of *R*₂₋₃₋₄, *Sc*₂ at its tip; *Rs* long, square and short-spurred at origin; *R*₁₋₂ about three times *R*₂; cord

oblique, the inner end of cell R_4 most basad; petiole of cell M_1 very short, about one-third m ; $m-cu$ nearly its length beyond the fork of M ; cell 2nd A long and narrow.

Abdomen brownish yellow, the bases of the segments dark brown, only about one-half as extensive as the pale apices; outer segments, including hypopygium, black. Male hypopygium (Fig. 18) with the region of the ninth tergite, 9t, and ninth sternite, 9s, almost transverse, without lobes or emarginations; on dorsal surface on the extreme margin of sternite close to the tergal suture and slightly back from margin with a long slender pale lobe, about one-third longer than either the basistyle or inner dististyle, provided with long conspicuous setae to the base. Basistyle, b , elongate, dark colored, without modified lobes; both dististyles, d , long and slender, the outer style terminating in an acute slender blackened spine that is gently curved; outer surface of style with several setae, two or three before apex being unusually long; inner style an even more slender and slightly longer yellow rod, somewhat dilated at apex. Interbase, i , appearing as a flattened plate that is extended into a slender curved spine.

Habitat: Southeastern Brazil.

Holotype, ♂, Sítio Bonfim, Nova Friburgo, Serra dos Or-
gãos, Rio de Janeiro, altitude 1000 meters, November 8, 1945
(Wygodzinsky).

I take great pleasure in naming this distinct fly for the collector, Dr. Petr Wygodzinsky, authority on the Thysanura and Reduviidae. I am greatly indebted to Dr. Wygodzinsky for many fine Tipulidae from the Organ Mountains and elsewhere. While generally similar to various other species in southeastern Brazil, including *Austrolimnophila* (*Austrolimnophila*) *candiditarsis* Alexander, A. (A.) *pallidistyla* Alexander and A. (A.) *tenuilobata* Alexander, the present fly is strikingly distinct in the structure of the male hypopygium, including the appendage of the ninth segment and both dististyles.

Epiphragma Osten Sacken

Limnophila (*Epiphragma*) Osten Sacken; Proc. Acad. Nat. Sci. Philadelphia 1859: 238; 1859; (type *fascipennis*, as *pavonina* Osten Sacken).
Epiphragma Osten Sacken; Mon. Dipt. N. America, 4: 193-194; 1869.

Rostrum only slightly elongate. Antennae primitively 16-segmented, in such cases (as *celator* and others) with 14 entirely separate flagellar segments; in most species, the proximal two segments united into a fusion-segment, the suture between the two segments more or less indicated; antennae short to elongate, in the latter case (as *circinata* and others) the segments elongate-

cylindrical, with verticils that are shorter than the segments; in some, as *parviseta*, the verticils very small. Pronotum relatively large; tuberculate pits lacking; pseudosutural foveae reduced or lacking, when present lying close to margin; praescutum with conspicuous setae on the interspaces. Legs with the tibial spur-formula 1- 2- 2, the spurs long and hairy; claws relatively small, simple; empodia conspicuous; legs of many of the species handsomely banded with black and yellow, in still other species with at least the femora uniform in color, either black or yellow. Wings with a strong supernumerary crossvein in cell C, lying above R_s , in the subgenus *Eupolyphragma* with a series of such crossveins present; R_{2-3-4} of moderate length, always longer than the basal section of R_5 ; veins R_3 and R_4 long, extending generally parallel to one another for virtually the entire length; elements of the anterior cord in transverse alignment; cell 1st M_2 variable in size, in cases large; *m-cu* often at near midlength of cell 1st M_2 ; anterior arculus lacking; crossvein *h* lying some distance basad of the arculus; squamal setae present or lacking. The wings of all known species are patterned with brown, usually with an ocelliform arrangement; in fewer species the ocelli are much broken to produce a finely spotted or dotted pattern. Male hypopygium with the tergite emarginate medially to produce two low lobes. Interbases strongly developed, of various shapes, furnishing excellent specific characters. Phallosome subquadrate in outline, the aedeagus relatively small and slender. Dististyles two, the outer one terminating in a simple curved spine, the surface of the style conspicuously setiferous; outer style in cases very small. The male hypopygium is remarkably uniform and monotonous in structure in the various species, the chief distinctions being found in the tergite, dististyles and the interbasal rods. This unvaried nature contrasts with the condition in the allied genus *Austrolimnophila* where a great diversity of structure is evident in the various species, as previously described and figured. Some of the more striking deviations from this uniform type of structure in the local fauna are found in *cynotis*, where it involves the inner dististyle; *hirtistylata*, with greatly lengthened setae on the basistyle; and *oxyphallus*, with an unusual modification of the aedeagus. Ovipositor with elongate sclerotized valves. The abdominal tergites have a pair of transverse impressions before midlength, this being the character that gave the genus its name (*Epi-phragma*, = upon-partition). The wing venation is shown (Fig. 5, *persancta*).

The chief center of distribution of the genus is in Tropical America, where numerous species occur, as listed below. A very few species, including the genotype, *fascipennis* (Say), range northward into the Nearctic Region. Fewer species are found in the Old World but none, apparently, in the Ethiopian Region. In the Oriental and Australasian Regions there is a marked increase in the number of forms, many of them pertaining to a distinct subgenus *Eupolyphragma*, as discussed below. Members of the typical subgenus occur in Australia, New Guinea and New Caledonia, but none in New Zealand.

The immature stages of the species so far known occur in wet rotting wood, a habitat that is common in the more primitive Hexatomine genera. Rogers (1942) has found the larvae of *fascipennis* in very wet to sodden or temporarily submerged wood, these varying from logs to small branches that are not much thicker than a lead-pencil. Scores of larvae were taken from a two-foot length of wood only about six inches in diameter. This species, at least, appears to be confined to hardwood (angiosperm) species. Other species that have been found in rotting wood include *ocellaris* (Linnaeus), in Europe; *solatrix* (Osten Sacken), in the United States, and *imitans* Alexander in Argentina (Bruch, 1939).

At this time I am re-naming the following subgeneric group:

Eupolyphragma, n. n.

For *Polyphragma* Alexander (Philippine Journ. Sci., 45: 435; 1931), preoccupied by *Polyphragma* Quatrefages, 1866 (Polychaete Annelida) and by *Polyphragma* Reuss, 1871 (Protozoa). This subgenus includes about 25 species, centering in the Philippines, with other species in Borneo and Celebes.

List of Species

- adpersa* (Wiedemann). — British Guiana, Brazil.
- amphileuca* Alexander. — Panama.
- annulicornis* Alexander. — Northern Argentina, Peru.
- atroterminata* Alexander. — Peru.
- auricosta* Alexander. — Hispaniola: Dominican Republic.
- buscki* Alexander. — Hispaniola: Dominican Republic, Haiti.
- celator* Alexander. — Mexico.
- circinata* Osten Sacken. — Costa Rica, Panama.
- claudia* Alexander. — Peru.
- cordillerensis* Alexander. — Colombia.
- cubensis* Alexander. — Cuba.
- cynotis* Alexander. — Peru.
- deliberata* Alexander. — Ecuador.

- delicatula* Osten Sacken. — Colombia, Venezuela.
diadema Alexander. — Ecuador.
enixa Alexander. — Ecuador.
fabricii Alexander. — Brazil, Peru.
felix Alexander. — Peru.
filiformis Alexander. — Ecuador.
gaigei Alexander. — Panama.
genualis Alexander. — Panama.
gracilicornis Alexander. — Colombia.
hirtistylata Alexander. — Ecuador.
histrío Schiner. — Venezuela (not Colombia, as stated).
imitans Alexander. — Brazil, Argentina, Bolivia (close to *solatrix*).
immaculipes Alexander. — Panama.
inaequicincta Alexander. — Costa Rica, Panama, Venezuela.
inornatipes Alexander. — Cuba.
jurator, sp. n. — Peru.
 (maculata Fabricius, see *fabricii* Alexander).
melaxantha Alexander. — Peru.
mephistophelica Alexander. — Venezuela.
muscolica Alexander. — Peru.
nebulosa (Bellardi). — Mexico.
nephele, sp. n. — Peru.
nigripleuralis Alexander. — Southeastern Brazil.
nigroplagiata Alexander. — Ecuador, Peru.
oreonympha Alexander. — Mexico.
oxyphallus Alexander. — Ecuador.
parviseta Alexander. — Ecuador.
persancta Alexander. — Venezuela, southeastern Brazil.
petalina Alexander. — Venezuela.
phaeoxantha Alexander. — Ecuador.
punctatissima (Wiedemann). — Brazil.
pupillata Alexander. — Southern Brazil.
sackeni Williston. — Lesser Antilles (St. Vincent).
sappho Alexander. — Peru.
serristyla Alexander. — Southeastern Brazil.
solatrix (Osten Sacken). — Mexico, northward into the southern U. S., south to Argentina.
subenixa Alexander. — Ecuador.
subsolatrix Alexander. — Ecuador.
sybaritica Alexander. — Venezuela.
varia (Wiedemann). — Panama, Ecuador, Peru, Venezuela, Brazil.
xanthomela Alexander. — Ecuador.

Epiphragma (Epiphragma) histrío Schiner.

Epiphragma histrío Schiner; Reise Novara, Diptera, p. 41; 1868.

The type, a male, was collected in Venezuela (not Colombia, as stated by Schiner) in 1864 by Lindig. In 1921 I was privileged to be able to study this type through the kindness of Dr. Hans Zerny. The following notes are based on the re-examination of this type.

Condition fairly good; all legs broken beyond the trochanters.

Male. — Length, about 8 mm.; wing, 11 mm.

Rostrum and palpi dark brown. Antennae of moderate length only; scape, pedicel and first flagellar segment dark brown, the remainder of flagellum obscure yellow. Head brown.

Pronotum and about the anterior half of the mesonotal praescutum dark brown, this color extended along the margins of the praescutum almost to the suture; remainder of notum, excepting the lateral sclerites of the postnotum, pale buffy brown. Thoracic pleura and lateral parts of the postnotum dark brown, this color being an extension of the color of the anterior mesonotum. Halteres yellow. Legs with the fore coxae dark brown, only the tips yellow; middle and hind coxae with approximately the basal half dark brown, the distal portion yellow; trochanters light yellow; remainder of legs broken. Wings strongly yellow with a very pale brown ocelliform pattern, the centers of these markings being the arculus, origin of R_s , junction of $r-m$ and R_5 and the tip of R_{1-2} ; small brown clouds at the ends of the longitudinal veins; a series of about three linear brown marks in the end of cell *1st A* and five or six in the end of cell *2nd A*; a series of seven or eight parallel brown dashes in cell *Cu* behind vein *Cu*; cord, outer end of cell *1st M*₂ and the fork of M_{1-2} narrowly seamed with brown; veins brown. Venation: Sc_1 ending shortly before the outer end of vein R_{2-3-4} , Sc_2 longer, beyond the fork of this vein; supernumerary crossvein in cell *C* about opposite midlength of R_s , the latter nearly square and short-spurred at origin; R_{1-2} a little longer than R_2 ; R_{2-3} nearly three times as long as R_{2-3-4} ; all branches of R_s extending generally parallel to one another virtually for their entire lengths; cell *1st M*₂ widened outwardly; petiole of cell M_1 about one-fourth the cell and subequal to $m-cu$, the latter lying far distad, at near five-sixths the length of the cell or approximately one-half its own length before the fork of M_{3-4} .

Abdomen obscure brownish yellow, including the hypopygium.

Epiphragma (Epiphragma) jurator, sp. n.

Size relatively large (wing, female, 12 mm.); praescutum and scutum rich fulvous, the former with the lateral borders narrowly blackened; antennae beyond the fusion-segment brownish black; pleura and pleurotergite almost uniformly blackened; femora yellow with an indistinct pale brown subterminal ring; wings obscure brownish yellow, with a darker

brown pattern that is partly ocelliform, the band at the level of origin of *Rs* preceded and followed by similar broad bands of the ground; a single darkened area in cell *Cu*; abdominal tergites dark brown, virtually unpatterned.

Female. — Length, about 10 mm.; wing, 12 mm.

Rostrum light brown, more or less yellow pollinose; palpi black. Antennae with scape dark brown, the pedicel slightly paler; fusion segment of flagellum obscure yellow, comprised of two imperfectly fused segments; remainder of flagellum uniformly brownish black; segments nearly cylindrical, with long verticils. Head medium brown, the front and orbits somewhat clearer yellow.

Pronotum and pretergites clear light yellow. Mesonotal praescutum and scutum rich fulvous, the former with the lateral borders narrowly blackened, the color extending cephalad to just beyond the pseudosutural foveae; scutum with a median line and two smaller marks on either lobe pale brown; scutellum obscure yellow; mediotergite yellowish gray, each posterior-lateral angle dark brown; remainder of pleura and pleurotergite almost uniformly dark brown and black, the latter color appearing as a broad dorsal stripe lying immediately beneath the buffy dorsopleural region. Halteres yellow. Legs with the coxae dark brown basally, the tips paling to obscure yellow; trochanters yellow; femora yellow, with an indistinct pale brown subterminal ring; tibiae and tarsi yellow. Wings obscure brownish yellow, with a relatively restricted dark and paler brown pattern that is in part ocelliform; major ocellus centering at origin of *Rs*, behind completely crossing the wing to the end of vein *2nd A*, in cell *Cu* forming a single darkened area; an incomplete ocellus at arculus and a compact one over the anterior cord; ground bands between the darkened areas broad; darkened marginal areas at stigma and beyond solid; further clouds at ends of the longitudinal veins and with a series of three dashes in cell *1st A* and seven in *2nd A*, not including the ones at the ends of the veins; other brown clouds over outer end of cell *1st M*₂, fork of *M*₁₋₂, and as subterminal darkenings near wing tip; a broad pale brown seam extending the whole length of vein *R*₅, with another in basal half of cell *Cu*; veins yellow, brown in the clouded portions. Venation: *Sc*₂ fully four times as long as *Sc*₁; supernumerary crossvein in cell *C* transverse; *Rs* square and long-spurred at origin; *R*₂₋₃₋₄ about twice the basal section of *R*₅; *m-cu* at about two-fifths the length of cell *1st M*₂.

Abdominal tergites dark brown, virtually unpatterned, the sternites a trifle paler; ovipositor with the genital shield medium brown, the long slender cerci yellow, curved to the acute tips.

Habitat: Peru.

Holotype, ♀, Huacapistana, Junin, altitude 1600 meters, July 14, 1941 (José M. Schunke).

Among the described Neotropical species, the present fly is closest to *Epiphragma (Epiphragma) felix* Alexander and *E. (E.) nigropleuralis* Alexander, both of which have the pattern of the legs and the ground color of the wings approximately the same. These differ evidently in the details of coloration of the body and in the wing pattern and venation.

Epiphragma (Epiphragma) nephela, sp. n.

Allied to *sappho*; mesonotum with the disk brownish gray, the cephalic and lateral borders of the praescutum dark brown; flagellar segments bicolored; femora brownish yellow with a vague darker brown subterminal ring; wings pale yellow, with a sparse brown spotted and abundantly dotted pattern, including a series of about seven darker areas along costa; supernumerary crossvein in cell C nearly transverse; R_{2-3-4} about four times the basal section of R_5 ; *m-cu* nearly at midlength of cell 1st M_2 .

Female. — Length, about 12 mm.; wing, 12 mm.

Type badly molded, the coloration describable in general terms only. Rostrum and palpi brown. Antennae with the scape and pedicel dark; fusion-segment yellow, elongate, comprised of two partly separated segments; succeeding flagellar segments bicolored, dark basally, with about the outer half yellow; outer segments with apical stem more slender; verticils elongate. Head brownish gray.

Pronotum and pretergites, with the dorsopleural membrane, chiefly yellow. Mesonotal praescutum with the cephalic and lateral borders dark brown, the disk chiefly brownish gray; posterior sclerites of notum chiefly of this same brownish gray color, the mediotergite darker behind. Pleura and pleurotergite chiefly dark brown, variegated with obscure yellow, especially on the dorsal sternopleurite. Halteres with stem yellow, knob more infuscated. Legs with the coxae yellow, the fore pair with a brownish ring on basal half, the middle coxae with a similar darkening at extreme base; trochanters yellow; femora brownish yellow, including the narrow tip, with a vague darker brown subterminal ring; tibiae and tarsi yellow. Wings with the ground color pale yellow, with a sparse brown spotted and abundantly

brown dotted pattern, the darkest brown spots including a series of about seven along costa, the second over the origin of *Rs*, the fourth at the fork of *Sc*; larger but paler brown spots over origin of *Rs*, cord, outer end of cell 1st M_2 and fork of M_{1-2} , the first vaguely ocellate; still smaller brown spots at ends of the veins and as linear dashes in outer ends of both Anal cells; remainder of disk with unusually numerous pale brown dots; veins yellow, somewhat darker in the patterned areas. Venation: Supernumerary crossvein in cell *C* nearly transverse; R_{1-2} a little longer than R_2 , the latter at midlength of the fifth darkened costal area; *Rs* strongly angulated at origin; R_{2-3-4} about four times the basal section of R_5 ; cell 1st M_2 widened outwardly; *m* about two-thirds the petiole of cell M_1 ; *m-cu* at from about two-fifths to nearly midlength of cell 1st M_2 .

Abdomen obscure yellow, more or less patterned with darker; pleural area more darkened. Ovipositor with the cerci very slender, dark brown, strongly upcurved.

Habitat: Peru.

Holotype, ♀, Huacapistana, Junin, altitude 1200 meters, July 15, 1941 (José M. Schunke).

The nearest relative of the present fly appears to be *Epiphragma* (*Epiphragma*) *sappho* Alexander, likewise from Peru but from higher altitudes. This differs in the details of coloration of the body and wings and in the venation.

Edwardsomyia Alexander

Edwardsomyia Alexander; Dipt. Patagonia and S. Chile, 1: 112-113, fig. 197 (head), fig. 47 (venation), fig. 198 (male hypopygium); 1929.

Characters generally as in *Austrolimnophila*, differing especially in the structure of the rostrum. Rostrum longer than remainder of head; maxillary palpi 4-segmented. Antennae elongate, 16-segmented; no fusion-segment; terminal segment very small, subglobular; verticils relatively short, except on the outer segments being less than the segments alone. Pronotum relatively small. Pseudosutural foveae very indistinct or lacking; no tuberculate pits. Tibial spurs elongate. Halteres short, the knobs large. Wings broad. Venation: R_{1-2} about one-half longer than R_2 ; cell M_1 sessile to short-petiolate; cell 1st M_2 large, its inner end arcuate; *m-cu* about its own length beyond the fork of *M*; prearcular field very short; anterior arcus lacking; vein 3rd *A* distinct, except at apex. The wing of the genotype is shown (Fig. 6). Male hypopygium with the median area of the ninth tergite gently produced. Basistyles relatively stout; interbase

a long sclerotized flattened rod arising from a more dilated base, at near two-thirds its length gently arcuate, the extreme tip truncate, its lower angle further produced into a small tooth. Outer dististyle broad-based, the outer portion fleshy, flattened, terminating in a fringe of conspicuous setiferous tubercles, the mesal portion of style produced into a blackened curved spine. Inner dististyle a little longer, appearing as a gently curved flattened blade that is narrowed to the obtuse apex, the distal two-thirds with numerous microscopic setulae. Aedeagus long and slender, straight, the subtending ear-like gonapophyses relatively small and inconspicuous.

The type and only known species is *Edwardsomyia chiloënsis* Alexander, of Chiloë Island, South Chile. The elongate rostrum separates the genus from the allied *Austrolimnophila*. In the Australasian fauna there are three further genera in this particular section of the Hexatomini that have the rostrum elongated, — *Rhamphophila* Edwards and *Tinemyia* Hutton of New Zealand, and *Tonnoirella* Alexander of Tasmania. All of these differ among themselves in the relative length of the rostrum, details of venation and in the structure of the male hypopygium.

Lecteria Osten Sacken

Lecteria Osten Sacken; Berlin. Ent. Zeitschr., 31: 206; 1887; (type *armillaris* Fabricius).
Lecteria Alexander; Proc. U. S. Nat. Mus., 44: 493-499; 1913.

Besides the typical subgenus, there are two further subgenera:

Psaronius Enderlein; Zool. Jahrb., Syst., 32: 50; 1912; (type *obscura* Fabricius, as *liturata* Enderlein).
Neolecteria Alexander; Philippine Journ. Sci., 53: 288; 1934; (type *bipunctata* Edwards, 1926- Borneo).

Palpi 4-segmented; rostrum short. Antennae 16-segmented; scape elongate, cylindrical; flagellar verticils elongate. Head narrowed behind; eyes widely separated by the broad anterior vertex. Pronotum large, massive. Tuberculate pits apparently lacking; pseudosutural foveae large and conspicuous. Legs with tibial spurs long and conspicuous in *Psaronius*, lacking in the subgenus *Lecteria*; claws with microscopic denticles on lower face near base. Venation: *Sc* unusually long, *Sc*₁ and *R*₁₋₂ ending relatively close together, *Sc*₁ varying from opposite to shortly before or beyond *R*₂, *Sc*₂ a moderate distance from the tip of *Sc*₁; *Rs* usually long, strongly arcuated to angulated and spurred at origin, in direct longitudinal alignment with *R*₂₋₃₋₄ and *R*₄; *R*₂₋₃ and *R*₅ forking at strong angles, in the former case usually

a rectangle; vein R_4 strong, ending just before the wing tip, R_5 just beyond this point. In the genotype, *armillaris* (Figs. 19, 20) vein R_3 is long and heavy, cell R_2 at margin being approximately as extensive as cell R_3 . In various species of *Psaronius* we find the behavior of vein R_3 most interesting, in the more generalized forms, as *fuscipennis*, *obscura* or *pallipes* (Fig. 21), vein R_3 is entire but in certain species paler at its outer end and showing signs of degeneracy; in still other species of *Psaronius*, vein R_3 becomes still weaker and more shortened, finally becoming contiguous (*triangulifera*, Fig. 22) with R_{1-2} ; as the specialization progresses, R_3 fuses backward from the margin with R_{1-2} , forming a constantly lengthening element R_{1-2-3} (*obliterata*, Fig. 23), with cell R_2 becoming smaller and smaller. As its culmination, shown by several species (*abnormis*, Fig. 24; *brevisector*, *brevitibia*, *manca*, *pygmaea*) vein R_3 is entirely gone and the short transverse vein that superficially appears to be vein R_2 in such species is actually a composite, its cephalic half being R_2 , the posterior part being R_{2-3} . Cell M_1 present in all species in the local fauna, including both *Lecteria* and *Psaronius*; lacking in *Neolecteria*; cell 1st M_2 pentagonal or hexagonal in outline, of characteristic shape in many species; *m-cu* far beyond the fork of M , at or beyond midlength of M_{3-4} ; anterior arculus preserved; prearcular crossveins in transverse alignment, both shortly before the level of h (Fig. 20); prearcular field short. For venation, compare Figs. 19-24, inclusive. Male hypopygium with the tergite large, slightly narrowed outwardly, the apex truncate. Basistyle simple; dististyles two, terminal; outer style a strong rod that narrows gradually into a strong curved hook; inner style broad at base, narrowed to the obtuse tip. Gonapophysis appearing as a long narrow blade. Ovipositor with the valves long and heavily sclerotized, especially the gently upcurved cerci.

Lecteria is a remarkably distinct genus whose strict affinities still remain much in doubt. Superficially the members of the group most resemble certain of the more primitive Hexatomini, as *Austrolimnophila* and *Pseudolimnophila*, and similarly the typical species of the genus *Limnophila* Macquart (including the genotype, *pictipennis* Meigen) but the venation, as detailed and figured above, is very distinct and peculiar. Although *Psaronius* possesses tibial spurs whereas *Lecteria* and *Neolecteria* lack these, the similarity of the venation in all these groups shows that they are very closely interallied and this relationship seems best expressed by considering all three groups as being subgenera

(see Alexander, C. P., Proc. U. S. Nat. Mus., 44: 493; 1913). It should be emphasized once more that the character of presence or absence of tibial spurs in the Tipulidae no longer has the value formerly attributed to it, as witness the condition in genera such as *Paradelphomyia*, *Polymera*, *Atarba*, *Elephantomyia*, and others.

All of the species of *Psaronius* are Neotropical and are listed below. The genotype of *Lecteria*, *armillaris*, is likewise Neotropical but the great concentration of species in this subgenus is in Tropical Africa, where more than a dozen species are found. This distribution in *Lecteria* provides the strongest known evidence of a relationship between the faunas of Tropical America and Africa as evidenced in the family Tipulidae. Such a type of distribution would be readily explainable by the Wegener hypothesis of continental displacement and the antiquity of the family, as now appreciated, adds support to such a hypothesis. Thus, the Baltic Amber, formerly considered to be Lower Oligocene, with an estimated age of from 35,000,000 to 40,000,000 years, is now considered to be much older, probably Lower Eocene, with an age of perhaps 60,000,000 years. As discussed in detail by the present writer (Crane-flies of the Baltic Amber, *Bernsteinforschungen*, 2: 1-135, 168 figs.; 1931) the Tipulid fauna preserved in the Baltic Amber was evidently as rich and diversified in the Samland of that period as it is in the same area of northern Europe at the present time. Furthermore, virtually every genus and subgenus in this family known to occur in the Baltic Amber is still living, attesting to the vast antiquity and persistence of the family. Besides the two subgenera above discussed, there is a third, *Neolecteria*, known only from Borneo, still further complicating our knowledge and interpretation of geographical distribution.

The immature stages of any species of *Lecteria* remain undiscovered.

List of Species

Lecteria

- armillaris* (Fabricius). — Central America, Panama, Peru, Brazil.
(calopus Walker, see *armillaris*).
matto-grossae Alexander. — Southern Brazil.

Psaronius

- abnormis* (Alexander). — Bolivia, Paraguay, northern Argentina.
brevisector Alexander. — Eastern Brazil.
brevitibia (Alexander). — Amazonian Brazil.
fuscipennis (Alexander). — British Guiana, eastern Brazil.

legata, sp. n. — Southeastern Brazil.

(*liturata* Enderlein, see *obscura*).

manca (Alexander). — Amazonian Brazil.

obliterata (Alexander). — British Guiana.

obscura (Fabricius). — British Guiana, Brazil.

pallipes (Alexander). — Amazonian Brazil.

pygmaea (Alexander). — Venezuela, British Guiana, Amazonian Brazil.

triangulifera (Alexander). — Amazonian Peru.

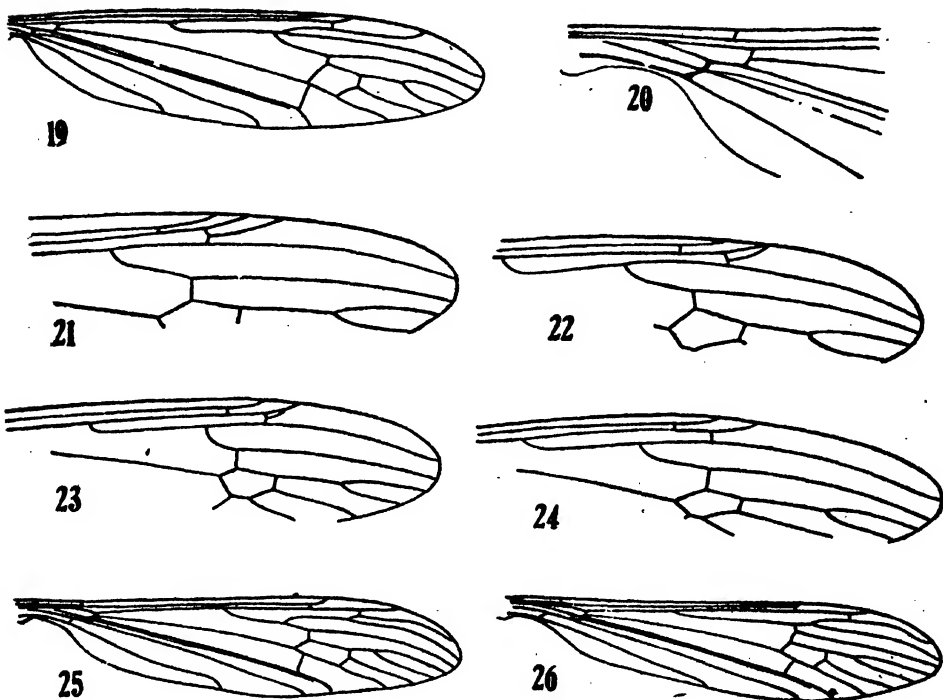


Fig. 19. *Lecteria (Lecteria) armillaris* (Fabricius); venation. — Fig. 20. The same; basal cells of wing and arculus. — Fig. 21. *Lecteria (Psaronius) pallipes* (Alexander); venation. — Fig. 22. *Lecteria (Psaronius) triangulifera* (Alexander); venation. — Fig. 23. *Lecteria (Psaronius) oblitterata* (Alexander); venation. — Fig. 24. *Lecteria (Psaronius) abnormis* (Alexander); venation. — Fig. 25. *Pseudolmnophila megalops* Alexander; venation. — Fig. 26. *Pseudolmnophila pluto* Alexander; venation.

Lecteria (Psaronius) legata, sp. n.

Belongs to the *manca* group; general coloration buffy, the praescutum with a more brownish central stripe that is divided by a capillary black vitta on the cephalic third of sclerite; femora yellow, the tips narrowly reddish brown; wings narrow, buffy yellow, patterned with pale brown, the areas confined to the vicinity of the veins; R_s lying close and parallel to R_1 .

Male. — Length, about 22 mm.; wing, 14.3 mm.

Rostrum light brown; palpi dark brown. Antennae with the scape brownish yellow, darker at tip; pedicel obscure yellow; basal flagellar segments yellow, the outer ones more infuscated; segments cylindrical or virtually so; longest verticils at near midlength of organ, approximately three times the segment. Head grayish brown; anterior vertex broad.

Pronotum light buffy brown. Mesonotal praescutum buffy, with a more brownish central stripe, this divided by a capillary black vitta on cephalic third of sclerite; lateral stripes very ill-defined; pseudosutural foveae black, very conspicuous; scutum and scutellum gray, patterned with brown, including a central vitta that becomes even more distinct over the mediotergite. Pleura reddish brown, gray pruinose, the anepisternum more infuscated. Halteres with stem pale, knob very weakly infuscated. Legs with the coxae reddish brown, sparsely pruinose; femora yellow, the tips narrowly reddish brown, the amount subequal on all legs; tibiae yellow, the tips more narrowly darker brown; tarsi obscure yellow, the outer tarsal segments infuscated. Wings much narrower than in *manca*, the cells correspondingly narrowed; ground color buffy yellow, patterned with pale brown, the marks including arculus, origin of R_s , cord, outer end of cell 1st M_2 , fork of M_{1-2} , tip of Sc and outer two-thirds of cell C ; narrow brown washes in outer end of cell R_2 , along veins Cu and 2nd A , and as a complete border in cell 2nd A ; veins yellow, darker in the patterned areas. Venation: R_s lying close and parallel to R_1 ; Sc_1 ending before the level of R_2 ; basal section of R_5 approximately four times $r-m$; $m-cu$ at two-thirds the length of M_{3-4} .

Abdomen elongate, as in the subgenus, chiefly reddish brown, the outer segments with a more clearly defined central stripe.

Habitat: Southeastern Brazil.

Holotype, ♂, Rio de Janeiro, Federal District, September 10, 1942 (Lerio Gomes).

Among the various regional species that have vein R_3 of the wings lacking, comprising the so-called *manca* group, and including *Lecteria* (*Psaronius*) *abnormis* (Alexander), *L. (P.) brevisector* Alexander, *L. (P.) brevitibia* (Alexander), *L. (P.) manca* (Alexander) and *L. (P.) oblitterata* (Alexander), the present fly is closest to *manca*, differing in the wing characters above described and in the pattern of the body, legs and wings.

Pseudolimnophila Alexander

Limnophila (*Pseudolimnophila*) Alexander; Cornell Univ. Mem. 25: 917; 1919; (type *luteipennis* Osten Sacken).
Pseudolimnophila Alexander; *ibid.*, 38: 848; 1920.

Head strongly narrowed and prolonged behind. Antennae short or of moderate length in both sexes; flagellar verticils long and conspicuous. Pronotum large and massive, the scutum and scutellum well separated, the former produced cephalad as a short flange overlapping the side of the head. Tuberculate pits and pseudosutural foveae both strongly developed but sometimes pale in color. Wings with *Rs* of moderate length, arcuated to angulated and spurred at origin; *R*₂₋₃₋₄ long to very long, in cases exceeding *Rs* in length (as *megalops*, Fig. 25), in other species (as *pluto*, Fig. 26) much shorter; radial and medial veins beyond cord generally long and sinuous, veins *R*₃ and *R*₄ extending generally parallel to one another for most of their lengths, diverging only near their outer ends; base of cell *R*₄ lying proximad of the other elements of the anterior cord; in cases (as *supplementa*), with a supernumerary crossvein in cell *R*₃; cell *M*₁ usually present, more rarely lacking (as *noveboracensis*, Nearctic); *m-cu* well beyond the fork of *M*; vein 2nd *A* curved strongly into the wing margin; anterior arcus preserved, placed at a moderate distance beyond h. No squamal setae. Abdominal tergites with weak transverse subbasal impressions, somewhat as in *Epiphragma*. Male hypopygium with the outer dististyle long and slender, narrowed into a long apical spine, the style exceeding the inner dististyle in length.

Besides the Neotropical species listed below, there are numerous representatives of the genus throughout the Holarctic and Ethiopian Regions, including Madagascar, as well as in the mountainous sections of the Oriental Region.

The immature stages, as known, live in wet or saturated organic earth.

It may be noted that while the structural characters of the adults closely approach those of the typical species of the genus *Limnophila* Macquart (see Part V of this series of Notes), the larval and pupal structures in the two groups indicate that the two genera are distinct.

List of Species

- luteipennis* (Osten Sacken); genotype. — Mexico and Central America northward in the Nearctic Region.
megalops Alexander. — Southeastern Brazil.
pluto Alexander. — Ecuador.
supplementa Alexander. — Southeastern Brazil.

Polymera Wiedemann

Polymera Wiedemann; *Diptera exotica*, p. 40, fig.; 1821; (type *fusca* Wiedemann).

There is one further subgenus:

Polymerodes Alexander; *Can. Ent.*, 52: 143; 1920; (type *parishti* Alexander).

Rostrum short; head not at all narrowed posteriorly; anterior vertex broad. Antennae of males of all local species greatly elongated and with the flagellar segments nodulose in various manners (Figs. 31-33); in cases (as *prolixicornis*), antennae much longer than the body. The simplest condition of the antennae is found in species such as *niveitarsis* (Fig. 31) and related forms, where the segments are elongate-cylindrical but virtually unmodified, with at most a slight basal swelling; here the very long verticils are distributed over the entire length of the segment. The majority of the species (as *obscura*, Fig. 32) have the flagellar segments beyond the first strongly binodose, with whorls of verticils at the nodes, the segments being strongly narrowed at midlength and at either end to produce a false multisegmented appearance. It was this apparent increase in number of antennal segments that suggested the generic name to Wiedemann who believed that the antennae of the males were 28-segmented, instead of the 16 segments actually present. In *nodulosa* (Fig. 33) there is a single very large basal swelling that bears the verticils, the remainder of each segment being gradually narrowed to the outer end. Certain species show very vague indications of a trinodose flagellar segment. A Japanese species (*parvicornis* Alexander) and the females of all other known forms have the antennae short and unmodified.

Pronotum reduced; tuberculate pits present, slightly removed from the anterior margin, linear; pseudosutural foveae appearing as linear impressed lines extending from the margin inward. Legs with tibial spurs long and conspicuous in the typical subgenus, lacking in the subgenus *Polymerodes*; claws very small and simple; legs often patterned with white, especially the outer tarsal segments. Wings (Figs. 27-30) having a characteristic venation that is very like the *Pediciine* subgenus *Dicranota* Zetterstedt, particularly the subgenera *Rhaphidolabis* Osten Sacken and *Plectromyia* Osten Sacken; vein R_{2-3-4} (petiole of cell R_3) present; vein R_2 preserved; cell M_1 present but small in virtually all species of the typical subgenus, lacking in *Polymerodes* and a few members of *Polymera* s. s.; cell M_2 open by the atrophy of m in all known species with the exception of *clausa* where cell 1st M_2 is closed; cell 2nd A broad. Macrotrichia of veins conspicuous. Wings commonly unpatterned, crossbanded in

hirticornis, *superba*, and others, variously spotted in *microstictula*, *obscura*, and others. Male hypopygium with the basistyles elongate, the two dististyles terminal in position, having an appearance somewhat as in *Paradelphomyia*, some *Limnophila*, and others.

It should be re-emphasized that females in the subgenus *Polymerodes*, lacking tibial spurs and having lost cell M_1 of the wings, very closely resemble species of the Eriopterine genus *Erioptera* Meigen and run to this latter group by means of existing keys. Such species are most readily told by the reduced meron in the case of *Polymera*.

Polymera is one of the most characteristic genera of Tipulidae throughout Tropical America. Two species occur in the southeastern Nearctic Region, members of the genus thence ranging southward into Paraguay, Bolivia and northern Argentina. A few species occur in the Antilles, including the Greater Antilles, but none is found as far south as Chile. Members of the genus are most characteristic of the Tropical and Subtropical Zones. A single species, *parvicornis* Alexander, is known from Japan and, despite its short antennae, seems to be correctly referred to this genus. A further species, *magnifica* Mèunier, is known from the Baltic Amber (Lower Eocene), attesting to the antiquity of the genus.

The immature stages of the two Nearctic species of *Polymera* have been well described by Rogers (Occas. Papers Mus. Zool., Univ. Michigan 268: 1-13, 2 pls.; 1933; Ecol. Mon., 3: 1-74, 25 figs.; 1933). The carnivorous larvae of *Polymera* (*Polymera*) *georgiae* Alexander live in saturated silt, particularly the black, largely organic mud found at the margins of small pools and lake shores that are grown over with herbage. The related *P. (P.) rogersiana* Alexander more prefers saturated sand-clay in seepage areas. From his study of the larvae and pupae, Rogers considers that the genus should be placed among the higher Hexatomini, probably in the subtribe Limnophilaria. He finds that the immature stages show the closest affinities with *Limnophila* Macquart (Part V of this series of Notes). On the basis of the venation, in conjunction with the evidence of the immature stages, I would place the genus in the Limnophilaria, as suggested, but in a low position to indicate their suggested relationship to the more primitive Hexatomine genera discussed in this report.

List of Species

Polymerodes

- catharinae* Alexander. — Southeastern Brazil.
conjuncta Alexander. — Eastern Brazil.
conjunctoides Alexander. — Amazonian Brazil, Ecuador, Peru.
evanescens, sp. n. — Southeastern Brazil.
minutissima Alexander. — Ecuador.
parishi Alexander. — Brazil, Paraguay.
tasioceroides, sp. n. — Southeastern Brazil.

Polymera

- albitarsis* Williston. — Lesser Antilles (St. Vincent).
albitarsis dominicae Alexander. — Lesser Antilles (Dominica).
albogeniculata Alexander. — Ecuador.
albogenualis Alexander. — Ecuador.
anticalba Alexander. — Southeastern Brazil.
bruchi Alexander. — Northern Argentina.
chiriquiensis Alexander. — Panama.
cinereipennis Alexander. — Paraguay.
clausa Alexander. — Ecuador.
crystalloptera Alexander. — Amazonian Peru.
fusca Wiedemann. — Brazil.
fuscitarsis Alexander. — Southeastern Brazil.
geniculata Alexander. — Puerto Rico.
grisea Alexander. — Panama.
hirticornis (Fabricius). — Brazil: "South America" — Fabricius.
honesta Alexander. — Mexico.
inornata Alexander. — British Guiana.
leucopeza Alexander. — Mexico.
melanosterna Alexander. — Southeastern Brazil.
microstictula Alexander. — Peru, Brazil, Paraguay.
minutior Alexander. — Ecuador.
monosticta, sp. n. — Peru.
nimbipennis Alexander. — Ecuador.
niveitarsis Alexander. — Guatemala, Panama, Ecuador, Venezuela, Surinam, Brazil.
nodulifera Alexander. — Mexico.
obscura Macquart. — Cuba; Mexico, southward to Brazil, Bolivia.
ominosa Alexander. — Colombia.
pleuralis Alexander. — Brazil, Peru.
prolixicornis Alexander. — Mexico, Salvador.
pulchricornis Alexander. — British Guiana.
regina Alexander. — Paraguay, southeastern Brazil.
scelerosa, sp. n. — Bolivia.
sordidipes Alexander. — Colombia.
subsuperba Alexander. — Venezuela, Paraguay.
superba Alexander. — Panama, Ecuador, Brazil.
superba discalis Alexander. — Paraguay.
thoracica Alexander. — Brazil.
tibialis Alexander. — Eastern and southeastern Brazil.
unipunctata Alexander. — Northwestern Argentina.
verticillata, sp. n. — Southeastern Brazil.

Polymera (Polymerodes) evanescens, sp. n.

Size small (wing, male, about 3.5 mm.); general coloration dark brown or brownish black; male antennae elongate, exceeding the wing in length; wings with a faint brownish tinge; *Rs* relatively short, arcuated, less than one-half longer than *R*₂₋₃; cell *M*₁ lacking or rarely preserved, in the latter case very small.

Male. — Length, about 2.8-3 mm.; wing, 3.4-3.6 mm.; antenna, about 4.1-4.2 mm.

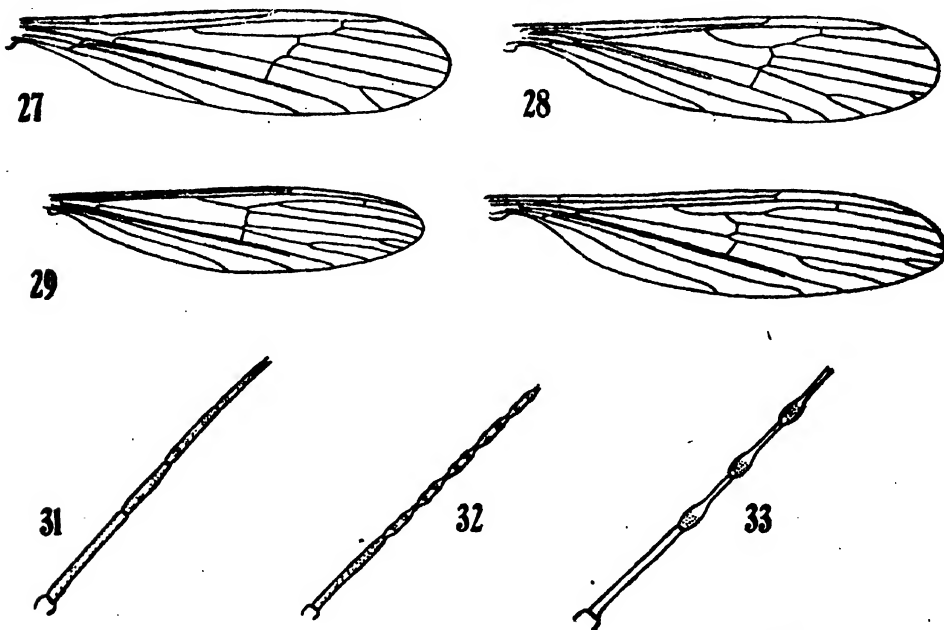


Fig. 27. *Polymera (Polymerodes) catharinae* Alexander; venation. — Fig. 28. *Polymera (Polymerodes) evanescens*, sp. n.; venation. — Fig. 29. *Polymera (Polymera) fusca* Wiedemann; venation (holotype). — Fig. 30. *Polymera (Polymera) verticillata* Alexander; venation. — Fig. 31. *Polymera (Polymera) niveltarsis* Alexander; male antennae, segments 2-6. — Fig. 32. *Polymera (Polymera) obscura* Macquart; male antennae, segments 2-7. — Fig. 33. *Polymera (Polymera) nodulosa* Alexander; male antennae, segments 2-6.

Rostrum and palpi black. Antennae (male) elongate, as shown by the measurements, exceeding in length either the body or wing, black throughout; individual flagellar segments elongate, binodose, with conspicuous outspreading verticils at the nodes. Head dark brown, opaque; anterior vertex broad.

Thorax almost uniformly dark brown or brownish black. Halteres dirty white, the knobs a trifle darker. Legs with the coxae and trochanters testaceous brown; remainder of legs dark brown, the tarsi vaguely to scarcely paler. Wings (Fig. 28) with a faint brownish tinge, unpatterned; veins brown. Venation: *Rs* relatively short, arcuated, less than one-half longer than vein

R_{2-3} ; cell M_1 lacking or, in cases, and including one wing of the holotype but not the other, present but very small, the majority of the type series without this cell.

Abdomen, including hypopygium, brownish black.

Habitat: Southeastern Brazil.

Holotype, ♂, Nova Teutonia, Santa Catharina, October 3, 1944 (Plaumann). Paratopotypes, several ♂♂, October 3-23, 1944 (Plaumann).

The most similar species is *Polymera (Polymerodes) catharinae* Alexander, which differs in all details of venation, as shown by the drawing (Fig. 27). The relative proportions of veins Rs , R_{2-3-4} and R_{2-3} .

Polymera (Polymerodes) tasioceroides, sp. n.

Size small (wing, male, less than 4 mm.); thorax almost uniformly very light brown, the pleura still paler, brownish yellow; antennae of male elongate, approximately one-half longer than the wing; wings grayish; Rs relatively short, arcuated; cell M_1 distinctly preserved.

Male. — Length, about 3-3.2 mm.; wing, 3.5-3.8 mm.; antenna, about 5.1-5.3 mm.

Rostrum pale brown; palpi darker. Antennae (male) elongate, as shown by the measurements, approximately one-half longer than the wing; scape and pedicel yellow, flagellum dark brown; flagellar segments elongate, binodose, the long nodes with very long outspreading verticils, the longest subequal to or longer than the segments. Head dark brown.

Thorax almost uniformly very light brown, the central portion of praescutum a trifle more darkened; pleura more brownish yellow, unpatterned. Halteres pale, the knob weakly darkened. Legs with the coxae and trochanters yellow; remainder of legs brown, the outer tarsal segments somewhat paler brown; tibiae without spurs but with a short ctenidium. Wings relatively narrow, grayish, unpatterned; veins pale brown; macrotrichia darker. Venation: Sc_1 ending about opposite three-fourths Rs , Sc_2 longer, close to its tip; Rs relatively short, arcuated; R_{2-3-4} straight, a little longer than R_{2-3} or subequal to R_{1-2} ; cell M_1 distinctly preserved; $m-cu$ at or very close to the fork of M ; anterior arculus preserved.

Abdomen dark brown, the sternites and hypopygium a trifle paler, brownish yellow.

Habitat: Southeastern Brazil.

Holotype, ♂, Nova Teutonia, Santa Catharina, October 5,

1944 (Plaumann). Paratopotypes, several ♂♂, October 5-23, 1944 (Plaumann).

The present fly is quite distinct from the various species of the subgenus *Polymerodes* in the constant retention of cell M_1 of the wings. It is similarly distinct from other small forms allied to *Polymera* (*Polymerodes*) *conjuncta* Alexander, *P. (P.) evanescens*, sp. n., and others by the pale color of the thorax, including the brownish yellow unpatterned pleura.

Polymera (Polymera) fusca Wiedemann.

Polymera fusca Wiedemann; *Diptera exot.*, 1: 44; 1821.

The type, a female, was collected in Brazil, without further data, and is preserved in the Winthem Collection of the Vienna Museum. In 1921 I was able to study this type through the kindness of Dr. Hans Zerny.

The specimen is badly broken, the abdomen entirely lacking; of the legs a single fore leg remains, this broken beyond the tibia.

The wing measures 7.6 mm. The following further notes on the type are given. Head and antennae brown. Mesonotum light brown, the dorsum badly injured in pinning. Pleura shiny brownish yellow, unpatterned. Wings (Fig. 29, drawn from the holotype) conspicuously tinged with light yellow; veins dark brown. Venation as in *niveitarsis*, differing in the arrangement and proportions of the veins forming the cord; *m-cu* variable in position, even in the single type specimen, from about one-third to nearly its own length beyond the fork of *M*.

There can be little question but that the closest allies of this species are *Polymera (Polymera) niveitarsis* Alexander, *P. (P.) anticalba* Alexander, and similar forms.

Polymera (Polymera) monostica, sp. n.

Size large (wing, male, 8 mm.; antenna, 11.5 mm.); mesonotum light brown, restrictedly patterned with darker; antennal segments binodose, the segments weakly bicolored; thoracic pleura chiefly blackened, the color involving the fore coxae; femora obscure brownish yellow, deepening to a narrow brown ring before the yellow apex; wings yellowish brown, with a restricted brown cloud on cord; R_{2-3-4} and R_{1-2} nearly equal in length, either about two-thirds the suboblique *Rs*; cell M_3 exceeding its petiole in length.

Male. — Wing, 8 mm.; antenna, about 11.5 mm.

Rostrum yellow; palpi a trifle darker. Antennae (male) elongate, nearly one-half longer than the wing; scape dark brown;

flagellar segments weakly bicolored, obscure yellow, the nodes of the segments darker, the outer segments more uniformly darkened; segments binodose, with unusually long outspreading verticils from the nodes. Head dark brownish gray, vaguely patterned with darker.

Pronotum and mesonotum light brown; lateral pretergites restrictedly pale yellow; praescutum restrictedly patterned with darker, most evident on the posterior interspaces; scutal lobes darkened; mediotergite with cephalic third pruinose, the posterior two-thirds obscure yellow, with a capillary brown median vitta; pleurotergite chiefly obscure yellow. Pleura chiefly blackened, appearing as a very broad stripe involving almost the entire pleura with the exception of the extreme dorsal pteropleurite and the ventral sternopleurite and meron; dorsopleural membrane more obscured. Halteres with stem obscure yellow, knob weakly darkened. Legs with coxae and trochanters yellow, the fore coxae narrowly darkened basally; femora obscure brownish yellow, deepening to a narrow brown ring before the narrower yellow tip; tibiae yellowish brown, the tips blackened; basitarsi weakly darkened at proximal end, the remainder of tarsi paling to cream yellow. Wings with a yellowish brown tinge, with a restricted darker brown cloud on cord; veins yellowish brown, a little darker in the central clouded portion. Venation: R_{2-3-4} and R_{1-2} nearly equal in length, either about two-thirds the suboblique R_s ; cell M_3 exceeding its petiole; cell 2nd A wider than in *unipunctata*.

Abdomen broken.

Habitat: Peru.

Holotype, ♂, Huanuco, altitude 2000 meters, October 5, 1937 (Woytkowski).

Polymera (Polymera) monosticta is very close to the southern Andean *P. (P.) unipunctata* Alexander, differing only in slight details of coloration and venation, as described above.

Polymera (Polymera) scelerosa, sp. n.

Closely allied to *albogenualis*; wings narrow, strongly infuscated; antennae shorter, with the individual segments correspondingly shortened; *m-cu* slightly oblique, placed at a different angle from *r-m*.

Male. — Length, about 5.5 mm.; wing, 6.2×1.6 mm.; antenna, about 9 mm.

Allied to *albogenualis*, differing especially in the narrow,

strongly infuscated wings, with slight further distinctions of color and structure.

Rostrum and palpi brown. Antennae (male) elongate, approximately one-half longer than the wing; scape dark brown, pedicel testaceous; first flagellar segment chiefly obscure yellow, succeeding segments bicolored, dark brown on the nodes, the ends whitened, the apices more broadly so; the short space between the nodes only slightly infuscated; individual flagellar segments shorter than the corresponding ones of *albogenualis*, the longest verticils a little shorter. Head dark brown.

Pronotum and anterior sclerites of mesonotum almost uniformly medium brown, the scutellum and postnotum slightly darker. Pleura chiefly black, producing a broad dorsal stripe involving more than half of the fore coxae; ventral half of the sternopleurite, with the middle and hind coxae yellow. Halteres dusky, the base of stem restrictedly pale. Legs with the coxae as described above; trochanters testaceous; femora pale brown, the bases restrictedly paler, the tips narrowly but conspicuously snowy white; tibiae pale brown, the base narrowly, the tip more broadly white; fore and middle basitarsi infuscated, the outer third and remainder of tarsi white; posterior tarsi uniformly whitened. Wings narrow, as compared with *albogenualis* (compare dimensions above), very strongly tinged with brown; veins and macrotrichia darker brown. Venation: Much as in *albogenualis*, the cells narrower, conforming to the narrow wings; *m-cu* slightly oblique, at a different angle from *r-m*; in *albogenualis*, *m-cu* more transverse, in the same course as *r-m*.

Abdomen, including hypopygium, brownish black to black. Habitat: Bolivia.

Holotype, ♂, Buenavista, Santa Cruz (Francisco Steinbach).

The comparisons with *Polymera (Polymera) albogenualis* Alexander have been given above.

Polymera (Polymera) verticillata, sp. n.

Mesonotum almost uniformly pale brown; dorsal pleurites covered by a broad darker brown stripe, the sternopleurite pale yellow; antennae (male) a little longer than the wing, the flagellar segments binodose, the nodes with verticils of unusual length, the longest exceeding twice the length of the segment; legs uniformly brown; wings with a strong brownish tinge, unpatterned; *Rs* from one and one-half to slightly less than twice as long as *R*₂₋₃₋₄.

Male. — Length, about 5.5 mm.; wing, 6.5 mm.; antenna, about 6.8 mm.

Female. — Wing, 6.3 mm.

Rostrum obscure yellow; palpi pale brown. Antennae (male) brown, the scape and pedicel a trifle paler; flagellar segments elongate, binodose, the nodes with outspreading verticils of very unusual length, the longest more than twice the segments themselves; outer flagellar segments a little more elongate than the more basal ones but still much shorter than in *fuscitarsis*, the binodose nature persisting to the penultimate segment. In *fuscitarsis*, the flagellar verticils are only about one-half longer than the segments, on the elongate outer ones subequal in length to the segments or shorter. Head dark gray; anterior vertex reduced to a narrow strip that is about one-third to one-fourth as wide as the diameter of scape.

Pronotum testaceous yellow. Mesonotum almost uniformly pale brown, the lateral praescutal border and adjoining membrane pale yellow. Dorsal pleurites with a broad darker brown longitudinal stripe extending from the cervical region to and including the postnotum; sternopleurite pale yellow. Halteres weakly infuscated, base of stem narrowly yellow. Legs with the fore coxae weakly infuscated, the remaining coxae clear yellow; trochanters testaceous; remainder of legs uniformly brown. Wings (Fig. 30) with a strong brownish tinge, unpatterned; veins brown, macrotrichia darker; veins more conspicuous than in *fuscitarsis*, the macrotrichia longer and stronger, especially in the male. Venation: Sc_1 ending shortly beyond the fork of R_{2-3-4} , Sc_2 not far from its tip; R_s from one and one-half to slightly less than twice R_{2-3-4} ; R_{1-2} subequal to or longer than R_s ; R_{2-3-4} about three times $r-m$; cell M_1 less than one-third as deep as cell M_3 ; $m-cu$ about one-half its length beyond the fork of M .

Abdomen, including hypopygium, brownish black.

Habitat: Southeastern Brazil.

Holotype, ♂, Friburgo, Rio de Janeiro, altitude 1055 meters, November 1942 (Lerio Gomes). Allotype, ♀, Terezopolis, Serra dos Orgãos, altitude 1000 meters, September 1942 (Gomes).

The most similar described species is *Polymera (Polymera) fuscitarsis* Alexander, which similarly has the legs uniformly brown. The chief differences between the two flies is found in the antennae, as compared above. In *fuscitarsis*, the antennae are longer, with shorter verticils, and with several of the outer segments unusually long and virtually simple.

Die Geschlechtstiere zweier Eciton-Arten und einige andere Ameisen aus Mittel- und Suedamerika (Hym. Formicidae)

Von T. Borgmeier, O. F. M., Rio de Janeiro

(Mit 32 Figuren)

Folgende myrmekologische Studie bezieht sich auf Material, das mir in den letzten Jahren von H. Schmidt (Costa Rica), Dr. Geijskes (Surinam), Dr. Weyrauch (Peru), Dr. Schubart (Pirassununga) und Dr. Silva (Uruçuca) zugesandt wurde. Allen Sammlern sage ich auch an dieser Stelle meinen herzlichsten Dank.

Eciton (Neivamyrmex) opacithorax Emery
subsp. *castaneum* Borgmeier, 1939

(Fig. 1-9)

Von dieser Rasse (von mir als Varietaet beschrieben) liegen mir jetzt auch Maennchen und Weibchen vor. Die Maennchen waren zum groessten Teil noch von der Puppenhuelse umgeben, standen aber kurz vor dem Schluepfen; ueber ein Dutzend Exemplare waren bereits geschluepft, aber noch in einer feinen Kutikel eingeschlossen; mit einiger Geduld liess sich die feine Haut abraeparieren und alle Charaktere (mit Ausnahme der noch gefalteten Fluegel) wurden gut sichtbar. Der Fund ist besonders deshalb interessant, weil er einen Vergleich mit den Maennchen und Weibchen der typischen Art ermoeeglicht, die seit 1901 bekannt sind.

Von *opacithorax* s. str. liegen mir 11 ♀ und 1 ♂ von Austin (Texas) vor, Wheeler leg.; ferner 3 ♀ von Pendleton (South Carolina), M. R. Smith leg.

In seiner ausgezeichneten Arbeit ueber die nordamerikanischen Arten der Untergattung *Neivamyrmex* Borgm. hat Smith (1942) eine genaue Beschreibung der typischen Art gegeben. Ich hebe im Folgenden die Unterschiede hervor, die *castaneum* von *opacithorax* s. str. unterscheiden. Wie bei allen Rassen von *Eciton* sind die Unterschiede minimal und schwer fassbar. Das wichtigste Unterscheidungsmerkmal scheint mir in der Form des Petiolus des Weibchens zu liegen. Moeglicherweise bieten die Genitalien des Maennchens weitere wichtige Unterscheidungsmerkmale. Da ich das einzige mir vorliegende Exemplar des Maennchens von *opacithorax* s. str. nicht zerschneiden moechte, begnuege ich mich

mit einer genauen Beschreibung der Genitalien des Maennchens von *castaneum*.

Arbeiter. — Faerbung dunkler, kastanienbraun, besonders der Kopf (incl. Fuehler), Thorax und Petiolus; Postpetiolus und Hinterleib etwas heller. Punktierung des Kopfes bei den groesseren Individuen groeber, Petiolus im Profil anscheinend etwas kuerzer. An den Fuehlern kann ich keinen Unterschied finden; bei beiden Formen sind die Geisselglieder 2-4 deutlich laenger als breit; natuerlich ist der Eindruck verschieden, je nachdem von welcher Seite man den Fuehler betrachtet.

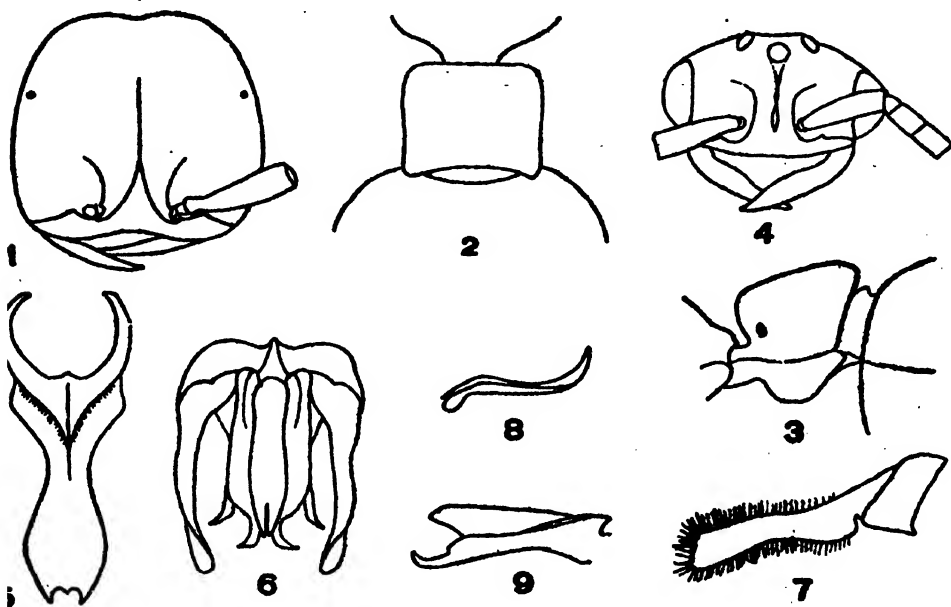
Weibchen. — Laenge 13-14 mm. Kopf und Thorax dicht punktiert und dazwischen fein chagriniert, mit schwachem Glanz. Vom Petiolus der typischen Art sagt Smith: "From above, one and one-third to one and one-half times as broad as long, *with convex sides* and a longitudinal median impression, which noticeable widens posteriorly". Bei *castaneum* ist der Petiolus von oben gesehen etwas breiter als lang, subquadratisch, mit parallelen geraden Seiten, breit abgerundeten Vorderecken und stumpfen Hinterecken. Die Zeichnung (Fig. 9, S. 584), die Smith von *opacithorax* s. str. ♀ gibt, stimmt durchaus mit seiner Beschreibung ueberein und zeigt deutlich die konvexen Seiten des Petiolus bei Dorsalansicht. Dieser Unterschied war fuer mich ausschlaggebend, *castaneum* nicht mehr als Varietaet, sondern als Unterart oder Rasse anzusehen.

Maennchen. — Laenge 10-11 mm. Kopf und Thorax schwarz, stark glaenzend. Die Geisselglieder 2-4 scheinen mir bei *castaneum* etwas schlanker als bei dem Maennchen von *opacithorax* s. str., das mir von Texas vorliegt. Der wichtigste Unterschied liegt in der Bildung des Epinotums, dessen abschuessige Flaechen abgestutzt ist; bei dem Maennchen von *opacithorax* s. str. ist sie deutlich konkav, was auch Smith in seiner Beschreibung hervorhebt ("appearing subtruncate but really concave"). Subgenitalplatte lanzettfoermig, auf der basalen Haelfte mit scharfem Mittelkiel; apikal mit zwei scharfen Zaehnen, dazwischen ein stumpferer Mittelzahn; Behaarung (nicht gezeichnet) kurz, am Rande vor dem Apex etwas laenger. Von den Genitalien gebe ich eine Dorsalansicht (nach Entfernen der lamina annularis). Die Sagittae sind laenger als die Volsellae, am Apex hakenfoermig schraeg nach aussen und oben umgebogen. Volsellen schlank und fast S-foermig geschwungen, apikales Viertel nach oben gebogen, in einem spitzen Schnabel endend. Die Stipites sind streifen-

foermig; Ventralrand breit konkav ausgebuchtet, nahe der Basis mit winkligem Einschnitt; Apex schraeg abgestutzt.

Puppe des Maennchens. — Laenge circa 13 mm. Faerbung rostbraun.

Beschrieben nach Material, das H. Schmidt 1940 in San José, Costa Rica, gesammelt hat. Die Maennchen stammen aus 2 Kolonien: a) 7 Puppen; b) 65 Puppen und 15 frisch geschluepfte



Eciton (Nelvamyrmex) opacithorax Em. subsp. *castaneum* Borgm.
Fig. 1. Kopf des Weibchens, Dorsalansicht. — Fig. 2. Petiolus des Weibchens, Dorsalansicht. — Fig. 3. Petiolus des Weibchens, von der Seite gesehen. — Fig. 4. Kopf des Maennchens, Dorsalansicht. — Fig. 5. Subgenitalplatte des Maennchens, Ventralansicht. — Fig. 6. Genitalien des Maennchens, Dorsalansicht nach Entfernen der Lamina annularis. — Fig. 7. Rechter Stipes, von der Aussenseite gesehen. — Fig. 8. Rechte Volsella, von der Innenseite gesehen. — Fig. 9. Sagittae, von der rechten Seite gesehen. — (Borgmeier del.)

Individuen mit Kutikel. Die Weibchen stammen aus 5 Kolonien und sind stenogastrisch oder schwach physogastrisch.

Anmerkung. — Smith hebt in seiner Beschreibung von *opacithorax* s. str. die grosse Aehnlichkeit mit *nigrescens* Cresson hervor, von der ebenfalls alle Geschlechter bekannt sind. Die Aehnlichkeit ist in der That so gross, dass beide Formen leicht verwechselt werden koennen. Die Genitalien von *nigrescens* (Syn. *schmitti* Em.) hat Wheeler (1921) abgebildet. Ich war erstaunt ueber die grosse Aehnlichkeit mit den Genitalien von *castaneum*; die Volsellen scheinen etwas laenger zu sein und die Stipites sind ventral staerker ausgebuchtet, sodass der Apex im Profil fussfoermig erscheint. Ich verglich darauf mein Material von *castaneum* ♂ mit 2 ♂ von *nigrescens* meiner Sammlung und fand, dass die abschuessige Flaechе des Epinotums ebenfalls abgestutzt und nicht konkav

ist (Smith sagt allerdings in seiner Beschreibung: "slightly concave"). Der Petiolus des Weibchens von *castaneum* naehert sich auch mehr der Form des Petiolus von *nigrescens* ♀, dessen Seiten, von oben gesehen, subparallel sind (cf. die Beschreibung von Smith). Wir haben hier also den Fall, dass *castaneum* in sich Charaktere von *opacithorax* und *nigrescens* vereinigt. Die Arbeiter stehen entschieden denen von *opacithorax* s. str. naeher; die Maennchen und Weibchen aber weisen gewisse Charaktere von *nigrescens* auf. Daraus folgt mit grosser Wahrscheinlichkeit, dass *opacithorax* und *castaneum* als Rassen von *nigrescens* angesehen werden muessen. Genauere Untersuchungen der Maennchen und Weibchen von *opacithorax* s. str. und *nigrescens* werden den gewuenschten Aufschluss bringen.

Eciton (Neivamyrmex) humile Borgmeier, 1939

(Fig. 10-21)

Auch von dieser Art liegen mir jetzt alle Geschlechter vor. Die Maennchen stammen aus einem Raubzug von *Eciton vagans* Olivier; es sind z. T. frisch geschluepfte Exemplare, z. T. maennliche Puppen. Die Weibchen stammen aus vier Kolonien. Das gesamte Material wurde von H. Schmidt 1940 in San José (Typenlokalitaet), Costa Rica, gesammelt.

Arbeiter. — In der Originalbeschreibung gab ich als Laenge 2,2-3,3 mm an, fuegte aber bei, dass es wahrscheinlich grossere und kleinere Individuen gaebe. Die wirkliche Grosse schwankt zwischen 1,8 und 4,1 mm. Die Art ist besonders durch die Bildung des Petiolus charakteristisch; bei Dorsalansicht ist derselbe laenglich, mit parallelen Seiten. Die schlanke Gestalt und das Profil des Thorax erinnern an *impudens* Mann und *diana* Forel, aber *humile* ist kleiner und noch schlanker, hat andere Kopf- und Petiolus-Bildung, andere Skulptur, etc. Ich gebe hier Abbildungen des Arbeiters, die das Wiedererkennen der Art erleichtern.

Weibchen. — Laenge 11 mm. Kopf (ohne Mandibeln) ungefaehr so breit wie lang, hinten etwas verschmaelert, Hinterecken abgerundet, Hinterrand tief ausgebuchtet. Augen am oberen Drittel der Kopfseiten gelegen, klein, nicht konvex, durch einen deutlichen hellgelben Pigmentfleck repraesentiert. Mandibeln charakteristisch; der Oberrand bildet mit dem leicht konkavem Kaurand einen stumpfen Winkel; Aussenrand sehr schwach (kaum bemerkbar) ausgebuchtet. Clypeus mit leicht konkavem Vorder- rand. Stirnleisten konvergent, Raum zwischen ihnen eingedrueckt; mit tiefer Mittelfurche, die sich bis zum Occiput hinzieht, aber oben schwaecher wird. In der Mitte der Stirn befindet sich ein flacher rundlicher Eindruck zu beiden Seiten der Mittellinie.

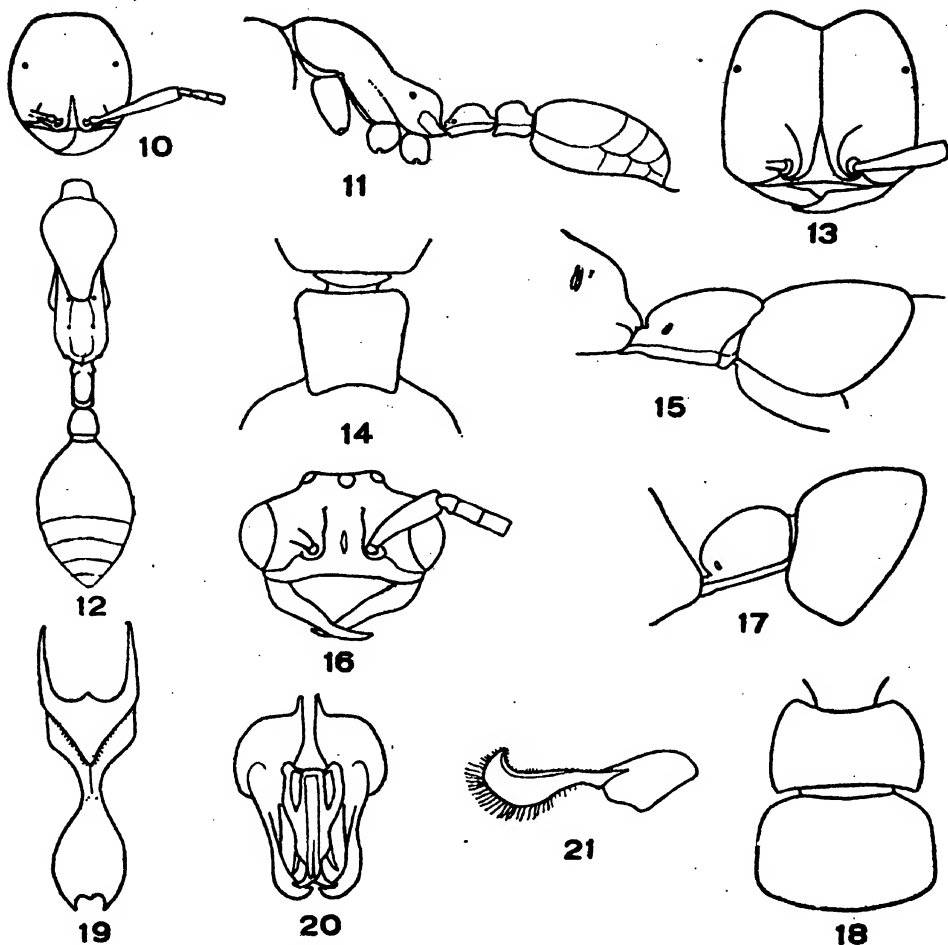
*Eciton (Nelvamyrmex) humile* Borgm.

Fig. 10. Kopf des groesseren Arbeiters, Dorsalansicht. — Fig. 11. Koerper des groesseren Arbeiters, im Profil. — Fig. 12. Idem, Dorsalansicht. — Fig. 13. Kopf des Weibchens, Dorsalansicht. — Fig. 14. Petiolus des Weibchens, Dorsalansicht. — Fig. 15. Idem, im Profil. — Fig. 16. Kopf des Maennchens, Dorsalansicht. — Fig. 17. Petiolus des Maennchens, im Profil. — Fig. 18. Idem, Dorsalansicht. — Fig. 19. Subgenitalplatte des Maennchens. — Fig. 20. Genitalien des Maennchens, Dorsalansicht, nach Entfernen der Lamina annularis. — Fig. 21. Rechter Stipes, von der Aussenseite. — (Borgmeter del.)

Occiput mit tiefem dreieckigem Eindruck, der die ganze hintere Kopfbreite einnimmt. Im Profil ist der Kopf dorsal stark konvex. Schaft der Fuehler etwa gleich halber Kopfhoehe (ohne Mandibeln), leicht gekruemmt; alle Geisselglieder laenger als breit. Thorax etwa dreimal laenger als hinten breit, hinten nur wenig breiter als vorn. Pronotum abgeflacht, laenger als breit, die Seiten bei Dorsalansicht geraendert erscheinend; Hinterrand stark nach vorn konvex. Promesonotalsutur deutlich. Prothorakalstigma bei

Dorsalansicht als deutlicher Hoecker erkennbar. Mesonotum vorn eingeschnuert, hinten breiter als vorn. Metanotum ein undeutlicher Streifen mit undeutlichen Suturen. Epinotum subquadratisch, Basalflaeche laenger als die abschuessige Flaeche. Der ganze Thorax ist in der Mitte von einer Laengsfurche durchzogen, die auf dem Pronotum undeutlicher ist, aber auf dem Mesonotum und besonders Epinotum sich zu grubigen Vertiefungen erweitert. Petiolus bei Dorsalansicht vorn breiter als hinten, mit tiefem Laengseindruck, der vorn etwas, hinten stark grubig erweitert ist; Hinterrand konkav. Bei Seitenansicht ist der Petiolus oben konvex; Unterrand gerade, ohne Fortsatz oder Zahn. Schenkel und Schienen stark abgeflacht. Der ganze Koerper ist dicht punktiert und schwach glaenzend. Behaarung ziemlich reichlich, kurz und anliegend am Hinterleib, mehr abstehend am Kopf; Pro- und Mesonotum bei einem Exemplar mit einigen sehr langen auffallenden Haaren; die anderen Exemplare sind offenbar abgerieben. Faerbung rotgelb, Beine und Petiolus etwas heller, Hinterleib rotbraun.

M a e n n c h e n . — Laenge circa 10 mm. Kopf (ohne Mandibeln) weniger hoch als breit, Verhaeltnis etwa 4:7. Clypeus mit schwach konkavem Vorderrand. Ocellenhoecker erhaben; seitliche Ocellen weit vom Augenrand entfernt. Augen maessig gross, konvex. Mandibeln charakteristisch, basal etwas verdickt, dann allmaehlich verduennt, Aussen- und Innenrand sanft doppelt S-förmig geschwungen. Stirnleisten scharf, annaehernd parallel, ueber der Mitte der Stirn in einem spitzen kurzen Zahn endend. Raum zwischen den Stirnleisten mit tiefer breiter Laengsfurche, die sich schwaecher bis zum Vorderocellus hinzieht. Fuehlerschaft etwas laenger als die drei ersten Geisselglieder zusammen. Hinterkopf nicht ausgehoeht. Hinterecken des Kopfes hinter den Augen nicht vorgezogen. Thorax laenger als hoch (4:3), vorn nicht ueber den Kopf vorgezogen. Epinotum abgestutzt. Vordere Mittellinie und Parapsidallinien deutlich. Petiolus von oben gesehen breiter als lang, vorn ausgebuchtet, Seiten konvex, Hinterrand ungefaehr gerade; im Profil oben konvex, Ventralrand ohne Fortsatz. Subgenitalplatte stark konvex, vorn mit Mittelkiel, apikal mit 2 Endzaehnen und einem stumpferen Mittelzahn. Stipites sehr charakteristisch, von der Seiten gesehen loeffelfoermig. Volsellae kuerzer als die Sagittae, apikal sanft nach oben gebogen und in einen spitzen Zahn endend. Sagittae basal verbreitert, bei Dorsalansicht mit doppelt geschwungenen Seiten; apikal jederseits mit einem gebogenen Haken, der nach oben und aussen gerichtet ist.

Koerper fein punktiert, glaenzend, mit gelblicher Pubescenz. Faerbung fast schwarz, Hinterleib mehr braun, mit gelben Segmentgrenzen. Geissel rostrot. Mandibeln auf der basalen Haelfte braun, auf der apikalen gelb. Beine gelblich, Schenkel basal und Tibien dorsal gebraeunt, vielleicht nicht ganz ausgefaerbt.

Puppe des Maennchens. — Laenge 11 mm. Rostfarbig braun.

Beschrieben nach zahlreichen Arbeitern, 4 Weibchen und 24 Maennchen (15 geschluepfte Exemplare und 9 Puppen) von San José, Costa Rica, H. Schmidt leg. 1940. Die Maennchen stammen aus einem Raubzug von *Eciton vagans* Olivier.

Eciton (Neivamyrmex) antillanum Forel, 1897

Die Art figuriert in der Literatur (auch in "Genera Insectorum") faelschlich unter dem Namen *antillarum*. Sie wurde lange Zeit nicht wiedergefunden. Ich erwaehte sie erstmalig 1939 von Costa Rica. Inzwischen erhielt ich weiteres reiches Material von San José (Costa Rica, H. Schmidt leg. 1940), mit Arbeitern in allen Groessen. Die Laenge variiert von 1,8 bis 7 mm. Nach Forel soll die Art blind sein ("yeux nuls"). Bei einigen groesseren Arbeitern meines Materials konnte ich deutliche unter der Haut gelegene gelbe Pigmentflecke feststellen; bei anderen Exemplaren suchte ich danach vergebens. Nach Forel hat der Petiolus ventral keinen Zahn. Bei meinen Exemplaren ist bei den groesseren Individuen ein stumpfer, im Profil rechteckiger Zahn vorhanden. Vielleicht deuten diese Unterschiede darauf hin, dass wir es hier mit einer Rasse von *antillanum* zu tun haben, die auf dem Festland lebt; die typische Art stammt von der Insel Grenada, B. W. I. In dieser Meinung werde ich dadurch bestaerkt, dass Forel mit guten Gruenden wahrscheinlich gemacht hat, dass *Eciton klugi* Shuckard das Maennchen von *antillanum* ist. Nun habe ich 1939 2 Maennchen von Costa Rica als *klugi* var. *imbellis* Em. determiniert; die Type dieser Varietaet stammt aus Peru. Falls Forel's Annahme richtig ist, muss der Name *antillanum* als Synonym zu *klugi* eingezogen werden, und die in Costa Rica vorkommende Form muesste als var. oder subsp. *imbellis* Em. (oder besser *imbelle*) bezeichnet werden.

E. antillanum For. steht *punctaticeps* Em. (Type von Rio de Janeiro) sehr nahe und die Arbeiter sind schwer unterscheidbar. Die Maennchen sind aber total verschieden, falls Forel's Vermutung richtig ist.

Eciton (Neivamyrmex) marginatum Borgmeier, 1939

Zahlreiche Arbeiter von San José (Typenlokalitaet), Costa Rica, in einem Tubus zusammen mit Arbeitern von *E. (N.) humile* Borgm., mit folgender merkwuerdiger Notiz des Sammlers: "Zwei Arten; kolossal viele kleine Ameisen leben zwischen den groesseren Ameisen; sind gelitten; werden nicht angegriffen". H. Schmidt leg. 1940.

Die Groesse von *marginatum* variiert zwischen 1,8 und 3,3 mm. Es waren auch viele kleine (1,8 mm) Arbeiter von *humile* im Glaeschen. Es ist mir ein Raetsel, wie der Sammler bei so kleinen, gleichmaessig gelb gefaerbten Tieren mit blossem Auge feststellen konnte, dass zwei Arten vorhanden waren. Ich selbst fand die Arbeiter von *marginatum* zwischen denen von *humile* erst bei genauer Untersuchung des Materials unter dem Binokular. Es ist wahrscheinlich, dass sich Zuege der beiden Arten gekreuzt haben. Soziale Symbiose wurde bei *Eciton* nie beobachtet.

Ectatomma (Parectatomma) schubarti, n. sp.

(Fig. 22)

Diese neue Art steht *menozzii* Borgm. 1928 (als *Holcoponera* beschrieben) aeusserst nahe, sodass es genuegt, die Unterschiede anzugeben.

Arbeiter. — Laenge 6 mm. Koerper etwas robuster und gedrungener als bei *menozzii*. Fuehlergeissel dicker. Kopf hinten weniger verschmaelert (vergl. Fig. 22 und 23). Vorderrand der Mesopleuren apikal etwas mehr vorgezogen. Epinotalzahn kurz, aber besser ausgebildet als bei *menozzii*. Stielchen dicker und laenger. Der Knoten zeigt vorn unten jederseits einen fluegelfoermigen Lappen, der oben und unten in einen Zahn endet; dieser Anhang ist auch bei *menozzii* vorhanden, aber nicht so deutlich abgesetzt (in der Originalbeschreibung wurde nur der untere Zahn erwaeht, der bei Dorsalansicht erkennbar ist). Ventraler Anhang des Petiolus vorn und hinten mit stumpfem Zahn, mit sehr schwach konkavem Unterrand; bei *menozzii* ist der Unterrand des ventralen Anhangs deutlich konkav, die Vorderecke ist abgerundet und der hintere Zahn ist sugespitzt. Glanz weniger stark als bei *menozzii*; die meisten Exemplare sind grau bereift, was wohl von der Konservierungsfluessigkeit herruehrt. Faerbung dunkelrot bis schwaerzlich; Fuehler, Mandibeln und Beine rotgelb.

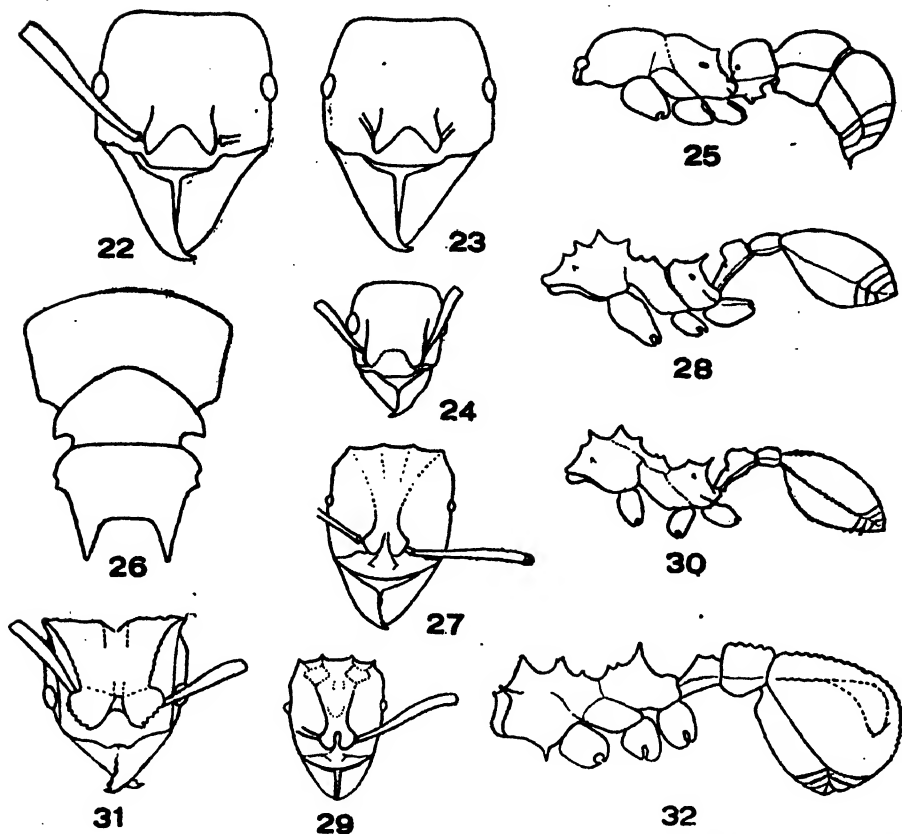


Fig. 22. *Ectatomma (Parectatomma) schubarti* n. sp., Kopf des Arbeiters, Dorsalansicht. — Fig. 23. *Ectatomma (Parectatomma) menozzii* Borgm., Kopf des Arbeiters, Dorsalansicht. — Fig. 24. *Ectatomma (Gnamptogenys) nigrifrons* n. sp., Kopf des Arbeiters, Dorsalansicht. — Fig. 25. Idem, Körper im Profil. — Fig. 26. *Procryptocerus marginatus* n. sp., Thorax des Arbeiters, Dorsalansicht. — Fig. 27. *Myrmicocrypta microphthalma* n. sp., Kopf des Arbeiters, Dorsalansicht. — Fig. 28. Idem, Körper im Profil. — Fig. 29. *Myrmicocrypta weyrauchi*, n. sp., Kopf des Arbeiters, Dorsalansicht. — Fig. 30. Idem, Körper im Profil. — Fig. 31. *Trachymyrmex verucosus* n. sp., Kopf des Arbeiters, Dorsalansicht. — Fig. 32. Idem, Körper im Profil. — (Borgmeier del.)

Typen 10 Arbeiter von Monte Alegre, Staat São Paulo, Dr. O. Schubart leg. April 1944, unter Stein.

Ectatomma (Gnamptogenys) nigrifrons, n. sp.

(Fig. 24-25)

Arbeiter. — Länge circa 3 mm. Kopf mit Mandibeln circa 1,25 mm hoch; ohne Mandibeln etwas länger als hinten breit, vorn etwas schmäler als hinten. Augen etwas ueber der Mitte der Kopfseiten gelegen, konvex. Mandibeln dreieckig, mit apikalem Zahn, Kaurand praktisch zahnlos, Winkel zwischen Basal- und Kaurand abgerundet, Aussenrand sanft ausgebuchtet.

Stirnleisten weit unter sich entfernt, vorn konvergierend, sonst fast parallel. Clypeus vorn etwas vorgezogen, in der Mitte mit geradem Vorderrand, an den Seiten ausgebuchtet. Fuehlerschaft nur wenig ueber den Hinterrand hinausragend; Geissel dick, Glied 1 etwa so lang wie die zwei folgenden zusammen, Glied 2-10 quer, allmaehlich verbreitert, Glied 9-11 eine schwache Keule bildend, Endglied (11) etwa gleich den drei vorgehenden Gliedern zusammen. Promesonotum im Profil vorn konvex, dorsal fast gerade. Naht zwischen Pronotum und Mesonotum nur an den Seiten sehr schwach angedeutet. Mesoepinotalsutur deutlich, schwach eingedrueckt. Basalflaeche des Epinotums im Profil vorn etwas konvex; abschuessige Flaeche etwas konkav, an den Seiten schwach gerandet. Epinotalzahn kurz und stumpf. Petiolus hoeher als lang, im Profil vorn und hinten abgestutzt, oben konvex; von oben gesehen, deutlich breiter als lang, fast halbkreisfoermig, Hinterrand schwach nach hinten konvex, an den Seiten und vorn abgerundet; Ventralfortsatz gross, lamellenfoermig, mit konkavem Unterrand; Vorder- und Hinterecke des Fortsatzes bilden einen stumpfen Zahn. Hinterleib hinter dem 1. Segment tief eingeschnuert.

Kopf, Thorax und Gaster mit feinen regelmaessigen Laengsstreifen (zwischen den Stirnlamellen circa 18 Streifen); auf dem Petiolus bilden die Streifen nach vorn gebogene Halbkreise, mit Ausnahme der Mitte, wo einige Laengsstreifen vorhanden sind. Mandibeln sehr fein genetzt.

Behaarung zerstreut, ziemlich lang, gelblich, am ganzen Koerper, Schaft und den Beinen; Geissel pubeszent.

Farbe rostgelb, Stirn schwarzbraun, Hinterrand des 2. Abdominaltergits geschwaerzt.

Weibchen (fluegellos). — Im allgemeinen dem Arbeiter aehnlich. Etwas robuster. Drei deutliche Ocellen vorhanden. Promesonotalsutur sehr deutlich, tief eingedrueckt, stark nach vorn konvex. Auch die uebrigen Suturen des Thorax deutlich. Basalflaeche des Epinotums kurz, etwa halb so lang wie die schwach konkave abschuessige Flaeche. Laenge circa 3 mm.

Typen: 3 Arbeiter und 1 Weibchen vom Valle Chanchamayo, 800 m, Peru, Dr. W. Weyrauch leg. 1. August 1939.

Die Art gehoert in die Naeh von *continuum* Mayr, von der mir 1 Arbeiter von Ribeirão Preto (Faz. Dumont, São Paulo, O. Conde leg. 1927) vorliegt, den Dr. Menozzi vor Jahren bestimmt hat. Die neue Art ist groesser, hat andere Thorax- und Stielchenbildung, etc.

Procryptocerus marginatus, n. sp.

(Fig. 26)

Arbeiter. — Laenge 6,5-7 mm. Kopf (mit Mandibeln) ungefaehr so hoch wie hinten breit. Stirn nach allen Seiten stark konvex; Hinterrand leicht konvex, gezaehnelst; Hinterecken mit kurzem stumpfen Zahn, davor mit kleinem konkaven Einschnitt. Clypeus mit konkavem Vorderrand. Mittellinie auf der unteren Haelfte schwach angedeutet. Mandibeln mit 1 apikalen und 1 sub-apikalem Zahn. Augen ziemlich flach. Pronotum viel breiter als lang, Vorderrand leicht konvex, Vorderecken stumpf, Seitenraender scharf, gerade, nach hinten konvergierend, kurz vor dem Ende ploetzlich nach innen gerichtet. Propleuren oben tief eingedrueckt, sodass die Seitenraender des Pronotums vorragen. Promesonotal-sutur deutlich, stark nach vorn konvex. Mesonotum seitlich mit grossem flachen Zahn, der nach hinten und etwas nach oben gerichtet ist. Epinotum mit geradem Vorderrand, vorn breiter als hinten, jederseits vorn mit 2 kurzen stumpfen Zaehnen (der vordere schwaecher). Epinotaldornen lang; Basalflaeche des Epinotums ungefaehr so lang wie die abschuessige; letztere ist leicht ausgehoehlt und jederseits fein gerandet. Petiolus deutlich laenger als breit (etwa $1\frac{1}{2}$ mal), von oben gesehen rechteckig; im Profil oben leicht konvex, vorne abgestutzt; Unterrand leicht konkav, vorn mit sehr kleinem stumpfen Zahn. Postpetiolus hinten und oben abgerundet, breiter als der Petiolus, hinten breiter als vorn, Vorderrand ungefaehr gerade, Seitenraender konvex. Hinterleib eifoermig, etwas abgeflacht. Schenkel stark geschwollen.

Der ganze Koerper mit schwachem Glanz. Stirn mit grober Netzskulptur, dazwischen fein chagriniert. Clypeus laengsgestreift, am Vorderrand mit einigen konkaven Querstreifen. Mandibeln gestreift. Occiput glatt, fein chagriniert; Occipitalrand etwas erhaben, unmittelbar darueber einige Reste von kurzen Laengsstreifen. Backen mit Laengsstreifen, die anastomisieren. Vorderrand des Pronotums mit Netzskulptur. Dorsum des Thorax und Stielchens mit groben Laengsstreifen, die haeufig zusammenlaufen. Abschuessige Flaeche des Epinotums glatt, fein chagriniert, nur ganz oben zwischen den Epinotaldornen mit einigen Resten von Laengsstreifen, den Auslaeufern der Streifen der Basalflaeche. Laengsstreifen der Pleuren flacher. Hinterleib dichter und feiner gestreift als der Thorax. Vorderschienen und Teil der Vorderschenkel mit Laengsstreifen; Schenkel II und III glatt, stark glaenzend; Schienen II und III gerunzelt.

Behaarung weisslich, kurz am Kopf, lang und grob abstehend

borstig am Dorsum des Thorax und Stielchens, am Hinterleib mehr anliegend, ausgenommen an den Seiten des 1. Tergits; Behaarung der Beine schraeg.

Faerbung pechschwarz, incl. Fuehler, Mandibeln und Beine.

Weibchen (gefluegelt). — Laenge 7-8 mm. Im allgemeinen dem Arbeiter aehnlich, mit den gewoehnlichen sexuellen Unterschieden. Pronotum ganz grob genetzt skulpturiert. Scutellum grob gerunzelt. Alle Suturen deutlich. Promesonotalsutur tief eingeschnitten. Fluegel etwas gebraeunt.

Maennchen. — Laenge 8 mm. Ozellenhoecker erhaben. Kopf unregelmassig laenggstreift, Hinterecken des Kopfes mit kurzem stumpfen Zahn. Clypeus im Profil konvex, zwischen den Fuehlerwurzeln ein seichter Eindruck. Augen klein, stark konvex. Pronotum vorn quer, seitlich laengsgestreift. Propleuren eingedrueckt. Die Y-foermigen Rinnen des Mesonotums tief, besonders die beiden vorderen divergierenden Aeste. Epinotaldornen kurz, lamellenartig. Stielchen laenger als der Hinterschenkel; Petiolus etwas laenger als der Postpetiolus, beide hinten hoeher als vorn (im Profil) und von oben gesehen hinten etwas breiter als vorn, beide viel laenger als breit. Gaster laenglich oval. Behaarung gelblich, sehr lang und dicht, besonders auf der Unterseite des Kopfes und an den Mandibeln, auf der Stirn mehr zerstreut. Thorax lang und zerstreut behaart, dichter auf dem Pronotum. Faerbung schwarz, Tibien und Tarsen (besonders die vorderen) roetlich, auch die Geissel mehr oder weniger dunkelrot, besonders auf der apikalen Haelfte.

Typen: 19 Arbeiter, 11 Weibchen (gefluegelt) und 2 Maennchen von Uruçuca, Staat Bahia, Pedrito Silva leg. 1947 (Nr. 566).

Dies ist die groesste *Procryptocerus*-Art, die mir bekannt ist. Sie ist besonders charakterisiert durch den scharfen Seitenrand des Pronotums, der bei allen anderen Arten mehr abgerundet ist.

Myrmicocrypta microphthalma, n. sp.

(Fig. 27-28)

Arbeiter. — Laenge circa 3 mm, Thorax 1 mm. Kopf (ohne Mandibeln) etwas laenger als hinter den Augen breit (11:9), vor den Hinterecken verschmaelert. Hinterrand der Stirn mit 2 mittleren Tuberkeln und jederseits 1 Tuberkel an den Hinterecken, wodurch drei schwache Eindruecke entstehen. Augen konvex, klein, deutlich kleiner als bei *spinosa* Weber, und etwas kleiner als bei *buenzlii* Borgm. und *urichi* Weber; auf der Mitte der Kopfseiten gelegen. Vorderrand des Clypeus konvex, Hinter-

rand mit 2 schwachen Zaehnen. Stirnleisten mehr oder weniger konvex oder schwach winklig, die Fuehlerbasis bedeckend und hinten durch schwache divergierende Kiele fortgesetzt, die von schwachen Tuberkeln gebildet werden und fast bis zu den Hinterecken reichen. Occipitalecken (Seitenecken des Occipitalrandes) gezaehnt. Mandibeln mit 8 Zaehnchen, die zum Apex hin allmaechlich staerker werden. Fuehlerschaft 0,8 mm lang, auf der apikalen Haelfte sehr wenig verdickt, etwa um das Dreifache seiner apikalen Breite die Hinterecken ueberragend. Geissel schlank, alle Glieder laenger als breit, 1. Glied etwas kuerzer als 2+3, Endglied verdickt, so lang wie die drei vorhergehenden Glieder. Prothorax mit einem Paar mittlerer und einem Paar seitlicher Dornen oder Tuberkeln, die seitlichen laenger und seitwaerts gerichtet (auf der Zeichnung perspektivisch verkuerzt). Mesonotum mit einem vorderen Paar, einem mittleren Paar und einem hinteren Paar von grossen Tuberkeln; die vorderen lamellenartig und zuweilen gespalten oder abgestutzt. Vor der tiefen Epinotalkonstriktion noch jederseits zwei Paar kleinerer Tuberkel. Basis des Epinotums gekielt, vorn zuweilen mit schwachem Tuberkel, hinten mit langem Zahn; abschuessige Flaechen ebenfalls gerandet. Petiolus gestielt. Knoten klein, oben flach. Postpetiolus breiter als lang, Vorderrand und Seitenraender gleichmaessig konvex, Hinterrand leicht konkav (von oben gesehen). Abdomen abgeflacht, 1. Tergit laenger als breit.

Behaarung schuppenfoermig, zerstreut an Kopf und Hinterleib, spaerlich am Thorax, reichlicher am Schaft und an den Beinen. Koerper fein chagriniert, Abdomen mit schwachem Glanz. Faerbung gelb bis rostgelb oder braeunlich; die gelben Exemplare scheinen nicht voellig ausgefaerbt zu sein.

Weibchen (fluegellos). — Laenge 4,5 mm. Kopf (ohne Mandibeln) 1 mm hoch. Die mittleren Tuberkeln des Hinterrandes der Stirn sind besser entwickelt als beim Arbeiter. Occipitalrand seitlich mit Zahn. Auch die Kielskulptur der Stirn ist kraeftiger. Prothorax mit einem Paar mittlerer kurzer Tuberkel und zwei Paar seitlicher Dornen. Scutum mit zwei Laengskielen. Mittellinie (vorn) und Parapsidallinien deutlich. Sutura zwischen Scutum und Scutellum linienfoermig. Scutellum hinten jederseits mit 1 Dorn, vorn mit stumpfem Tuberkel. Epinotum gerandet. Epinotaldornen lang und duenn. Postpetiolus von oben gesehen zweimal breiter als lang, fast trapezfoermig, Seiten mehr oder weniger gerade, nach hinten divergent, Hinterrand in der Mitte schmal konkav, Vorderrand auch schmal konkav, Seitenraender

hinten (unten) stumpf zahnfoermig. Hinterleib vorn deutlich abgestutzt, dicht fingerhutartig punktiert. Thorax gerunzelt. Faerbung dunkler als beim Arbeiter, rostbraun.

Typen: Zahlreiche Arbeiter und 2 Weibchen, Valle Chanchamayo, 800 m, Peru, Dr. W. Weyrauch leg. 1. Februar und 1. August 1939 (Nr. 21, 30 und 31).

Die Art steht *spinosa* Weber nahe, von der mir zwei Cotypen vorliegen. Sie unterscheidet sich durch kleinere Augen, Anzahl der Thorakaltuberkeln, Bau des Stielchens, hellere Faerbung, etc.

Myrmicocrypta weyrauchi, n. sp.

(Fig. 29-30)

Sehr aehnlich der vorigen Art. Die Arbeiter koennen sehr leicht mit denen von *microphthalma* verwechselt werden. Aber das Weibchen von *weyrauchi* ist deutlich kleiner und zeigt die Artunterschiede deutlicher als der Arbeiter.

Arbeiter. — Laenge circa 2,2 mm, Thorax 0,88 mm. Kopf (ohne Mandibeln) etwas laenger als hinter den Augen breit (9:7). Tuberkel des Hinterrandes der Stirn etwas spitzer als bei *microphthalma*; Tuberkelskulptur etwas deutlicher, bei den helleren Exemplaren undeutlich abgegrenzte Felder vor dem Hinterrand bildend. Tuberkeln des Thorax im allgemeinen wie bei *microphthalma*, aber spitzer. Vor dem vorderen Paar der Epinotaltuberkeln noch jederseits 1 winziger Tuberkel, aber mehr seitlich, direkt hinter der Epinotaleinschnuerung. Petiolus mit relativ groesserem Knoten. Unterrand des Stielchens vorn sehr schwach konkav, davor mit winzigem kleinen Zaehnchen, der leicht uebersehen werden kann (bei *microphthalma* ohne Zahn). Schuppenfoermige Haare fein und viel spaerlicher. Faerbung ockergelb.

Weibchen (fluegellos). — Laenge circa 3,2 mm. Kopf mit Mandibeln 1 mm hoch, Thorax 1 mm lang. Tuberkelskulptur der Stirn deutlicher als beim Arbeiter, Kiele bildend. Occipitalecken gedorn. Tuberkeln des Prothorax kraeftig, Mittelkiele des Scutums (2) schwach. Scutum und Scutellum viel schwaecher gerunzelt als bei *microphthalma*. Epinotaldornen duenn. Stielchen des Petiolus am Ventralrand vorn mit deutlichem Zahn. Hinterleib abgestutzt. Faerbung dunkler als beim Arbeiter.

Typen: 11 Arbeiter und 1 Weibchen. Valle Chanchamayo, Peru, 800 m, Dr. W. Weyrauch leg. 1. August 1939 (Nr. 28).

Mycocepurus reconditus Borgmeier, 1937

Die Typen dieser Art stammen von Agua Preta (heute Uruçuca genannt), Staat Bahia, Brasilien. Dr. Weyrauch sandte

mir 12 Arbeiter vom Valle Chanchamayo, Peru, 800 m, gesammelt am 1. August 1939 (Nr. 29), die keinerlei Unterschiede von den Typen aufweisen.

Trachymyrmex verrucosus, n. sp.

(Fig. 31-32)

Arbeiter. — Laenge circa 4-4,2 mm, Thorax 1,8 mm. Kopf ungefaehr wie bei *urichi* For. gebildet, in der Mitte (ohne Mandibeln) etwa so hoch wie breit, Hinterrand der Stirn in der Mitte schmal und tief ausgebuchtet, Hinterecken etwas ohrenartig seitwaerts gezogen; dahinter hat der Kopf einen konkaven Eindruck, sodass die Seitenraender hier bei Dorsalansicht ausgebuchtet erscheinen. Clypeus vorn in der Mitte eng, an den Seiten breiter ausgebuchtet. Mandibeln apikal mit 2 ungleichen Zaehnen; ferner circa 5 kleinere Zaehnchen vorhanden. Stirnlappen konvex, mit gezacktem Rand, Stirnleisten sanft gebogen und divergierend, bis zu den Hinterecken reichend und mit den deutlichen Augenkiele eine lange Fuehlergrube bildend. Kiele des Scheitels (2) kurz; vor denselben ist die Stirn in der Mitte eingedrueckt. Oberer Augendorn fehlend (bei *urichi* vorhanden). Occiput jederseits mit stumpfem Tuberkel (bei *urichi* mit einem Dorn). Augen unter der Mitte der Kopfseiten gelegen. Propleuren unten am Vorderrand mit abwaerts gerichtetem Dorn. Pronotum in der Mitte mit 2 kleinen verwachsenen Tuberkeln; seitlich mit je 1 langem Dorn. Vordere Dornen des Mesonotums sehr robust, ungefaehr so lang wie die seitlichen Pronotaldornen. Dahinter ein Paar kuerzerer Tuberkel, meist zwei- oder dreizackig. Abschuessige Flaechen des Mesonotums jederseits mit kurzem Zahn. Basalflaechen des Epinotums jederseits mit schwachem Kiel, der vorn jederseits 2 undeutliche Tuberkel oder Zaehnchen aufweist. Epinotaldornen lang und kraeftig. Abschuessige Flaechen des Epinotums nicht gerandet. Petiolus kurz, im Profil vorn schraeg aufsteigend, Unterrand gerade, Knoten oben jederseits mit 2 kurzen Tuberkeln. Postpetiolus schwach eingedrueckt, vorn abgestutzt; bei Dorsalansicht Hinterrand gerade, Seitenraender konvex, breiter als lang (4:3), im Profil mitt konvexem Unterrand, Oberrand gerade aber gehoeckert. Hinterleib von charakteristischer Bildung, 1. Tergit sehr gross, seitlich vorn mehr oder weniger gerandet, unterhalb des Randes jederseits eingedrueckt und hinten mit grosser wulstiger Verdickung.

Behaarung zum grossen Teil schuppenartig, aus Tuberkeln

Tuberkeln des Postpetiolus und des 1. Abdominaltergits gross. Der Koerper ist matt. Mandibeln mit starkem Glanz. Faerbung weinrot (wie bei *pruinus*).

Weibchen (gefluegelt). — Laenge 5,5-6 mm, Thorax 2,2 mm. Kopf mit tiefer Furche zwischen den Laengskielen des Scheitels, vor dem vorderen Ocellus mit tiefem Quereindruck. Die mittleren Tuberkeln des Pronotums fehlen, seitliche Dornen kurz. Scutum abgeflacht, ohne Dornen, mit zahlreichen Hoeckern. Dornen des Scutellums kraeftig aber nicht lang. Epinotaldornen kurz, dreieckig. Postpetiolus oben mit ovalem Eindruck, seitlich mit Seitenrinne. 1. Tergit des Hinterleibs mit vielen grossen Tuberkeln, aus denen kurze schwarze Haerchen entspringen; Seiteneindruck schwach, hintere Seitenwuelste weniger ausgepraegt als beim Arbeiter. Fluegel grau getruebt, Vorderfluegel 5,7 mm lang.

Typen: 5 Arbeiter und 2 Weibchen von Surinam, Lelydorp, Dr. Geijskes leg. 20. Mai 1938, im Nest von *Atta cephalotes* L.

Die Art steht *urichi* Forel nahe, von der mir eine Topotype vorliegt, die ich meinem Freunde Dr. Neal A. Weber verdanke. Die neue Art unterscheidet sich von *urichi* durch die Skulptur und Bedornung; die Epinotaldornen sind kuerzer, die Faerbung ist dunkler, etc.

Bibliographie

- Borgmeier, T., 1928, Einige neue Ameisen aus Brasilien. — Zool. Anz., vol. 75, pp. 32-39, 7 Fig.
- 1934, Contribuição para o conhecimento da fauna mirmecológica dos cafezais de Paramaribo, Guiana Holandesa. — Arq. Inst. Biol. Veget., Rio de Janeiro, vol. 1, pp. 93-111, 9 Fig., 2 Taf.
- 1937, Formigas novas ou pouco conhecidas da América do Sul e Central, principalmente do Brasil. — Arq. Inst. Biol. Veget., Rio de Janeiro, vol. 3, pp. 217-255, 38 Fig., 6 Taf.
- 1939, Nova contribuição para o conhecimento das formigas neotrópicas. — Rev. de Ent., Rio de Janeiro, vol. 10, pp. 403-428, 19 Fig.
- Emery, C., 1894, Studi sulle formiche della fauna neotropica. VII-XVI. — Bull. Soc. Ent. Ital., vol. 26, pp. 137-241, 4 Taf.
- 1900, Nuovi studi sul genere Eciton. — Mem. R. Accad. Sc. Ist. Bologna, (5) 8, pp. 511-526, 1 Taf.
- Forel, A., 1893, Formicides de l'Antille St. Vincent. — Trans. Ent. Soc. London, 1893, pp. 333-418.
- Smith, M. R., 1942, The legionary ants of the United States belonging to Eciton subgenus Neivamyrmex Borgmeier. — Amer. Midland Natur., vol. 27, pp. 537-590, 23 Fig.
- Weber, N. A., 1937, The biology of the fungus-growing ants. Part I. New forms. — Rev. de Ent., Rio de Janeiro, vol. 7, pp. 378-409, 11 Fig.
- Wheeler, W. M., 1921, Observations on army ants in British Guiana. — Proc. Amer. Acad. Arts. Sci., vol. 56, pp. 291-328, 10 Fig.
- & Long, W. H., 1901, The males of some Texan Ecitons. — Amer. Nat., vol. 35, pp. 157-173, 3 Fig.

Neue Hispinae aus Suedamerika (Col. Chrysom.).

107. Beitrag zur Kenntnis der Hispinae

Von **Erich Uhm ann**, (10b) Stollberg-Sachsen, Gartenstadt 197, V.

(Mit 18 Figuren)

Meine hier erwahnten Beitraege.

- 19. Ent. Bl. 26, Berlin 1930.
- 20. Fol. zool. hydrob. 1, Riga 1930.
- 24. Fol. zool. hydrob. 2, Riga 1930.
- 54. Arb. morph. taxon. Ent. 2, Berlin-Dahlem 1935.
- 64. Mitt. zool. Mus. Berlin, 22, Berlin 1937.
- 70. Rev. Ent. 8, Rio 1938.
- 71. Proc. R. ent. Soc. London, (B), Taxonomy, 7, London 1938.
- 77. Festschr. Strand, 5, Riga 1939.

Terminologie.

Zwischenraum = Deckenflaeche zwischen zwei Punktreihen.

Zwischenstreif = Deckenflaeche zwischen zwei Rippen, beziehungsweise den ihnen entsprechenden Raemen.

1) *Amplipalpa graminum* n. sp. (Fig. 1).

Lata, elytris postice et prothorace antice angustatis, nitida, supra viridi-cyanea, antennis nigris, articulo ultimo apice albido, subtus pedibusque picea. Prothorace lato, lateribus dimidio basali parallelis, dimidio apicali valde convergentibus, tenuissime marginatis, disco convexo laevi, prothorace ad latera fortiter punctato, postice leviter impresso, basi linea arcuata punctata; elytris margine laterali laevi, apicali denticulato, regulariter punctato-striatis, striis interioribus tenuissimis, exterioribus fortibus, his punctis subremotis. — 5×3 mm.

Der *Amplipalpa thoracica* Uh. (19:33-, Abb.) im Umriss und auch in der Faerbung sehr aehnlich, aber wegen der Bildung des Halsschildes doch wohl verschieden. Oberseite glaenzend, blaugruen-metallisch, Fuehler schwarz, Endglied mit heller Spitze, Unterseite und Beine pechbraun. Kopf glatt, zwischen den Augen vertieft, neben jedem Auge hinten mit einem Eindruck, der deutlicher als bei *A. thoracica* ist. Kopfschild quer, gerunzelt, sehr fein behaart. Fuehler den Hinterrand des Halsschildes erreichend, schlank, zur Spitze etwas verdickt, sonst wie bei *A. thoracica*. Halsschild doppelt so breit wie lang wie bei *A. thoracica*, aber breiter erscheinend, da die Seiten in der Basalhaelfte parallel sind; in der Mitte nicht stark gewinkelt, abgerundet. Decken wie bei *A. thoracica*, die groben Punkte der Reihen 6-10 oft voneinander um einen Punkt entfernt.

Holotypus. Brasilien: Bahia (Dr. Bondar, nr. 1930). An *Gramineen*. Coll. Uhm ann.

2) *Amplipalpa gibbula*, n. sp. (Fig. 2, 3).

Oblonga, a latere visa basi elytrorum gibbula, nitidissima, nigra, antennis, ore, lateribus prosterni rufo-testaceis, articulus primus antennarum fuscus. Antennae articulis inter se longitudine fere aequalibus. Prothorax transversus, latera angulis prominentibus, laevis, punctis raris exilissimis, anguli postici impressi, ibi crebrius fortiterque punctati. Scutum subpentagonale. Elytra lateribus parallelis, apex rotundus, minute denticulatus, supra iniqua: Ab humeris oblique et intra transverse impressa, quibus rebus pars interior gibbula, humeri prominuli. Striae regulares, decem, novem punctis minutis, decima punctis fortibus, prima postice depressa. Margo post humerum a latere visus valde sinuosus. — $4,5 \times 2,5$ mm.

Amplipalpa gibbula n. sp. nimmt durch die Unebenheit der Decken und die starke Schwingung des Deckenseitenrandes (Profil!) eine besondere Stellung in der Gattung ein. Die schwarze Faerbung der Oberseite macht sie ausserdem leicht kenntlich. Wegen der Bildung der Fuehler und des Halsschildes scheint sie Beziehungen zu *A. thoracica* Uh. (19:33-, Abb.) und *A. graminum* n. sp. zu haben.

Rechteckig, stark glaenzend, Oberseite ganz schwarz, Fuehler, Mundteile, Seitenstuecke der Vorderbrust und Kniee roetlich-gelbbraun, erstes Fuehlerglied angedunkelt. Im Profil erscheint der Koerper stark gekruemmt, weil der Halsschild nach vorn gekruemmt und der Basalteil der Decken hinter dem Schildchen etwas bucklig aufgetrieben ist. Kopf mit ebener Stirn, die tiefer als die Augen liegt (tiefer als bei *A. thoracica*), sodas diese dort vorgewoelbt sind. Kopfschild quer, dicht punktiert, sehr fein behaart, durch die Fuehlereinlenkung beiderseits ausgerandet. Fuehler den Hinterrand des Halsschildes erreichend, schlank, zur Spitze etwas verdickt und deutlicher behaart, mit Breit- und Schmalseite, Glieder von der Schmalseite gesehen wenig voneinander verschieden, aehnlich wie bei *A. thoracica*, aber nicht ganz so schlank. 3. Fuehlerglied nich durch seine Laenge ausgezeichnet wie bei manchen anderen *Amplipalpa*-Arten, z. B. *negligens* Baly, *collaris* Guér., *plaumanni* Uh. Halsschild in der Mitte doppelt so breit wie lang, vorn schwach ausgerandet, Seiten in der Mitte winklig vorspringend, nach vorn stark und nach hinten etwas schwaecher konvergent, laengsueber gewoelbt, besonders nach vorn, in den Hinterwinkeln mit je einem Eindruck; spaerlich und aeusserst fein punktiert, in den Eindruecken mit zerstreuten, staerkeren Punkten, Seitenrand fein, Hinterrand in der zum Schildchen vorgezogenen Mitte kraeftig gerandet. Schildchen so breit wie lang, abgerundet fuenfeckig, glatt. Decken durch Eindruecke ausgezeichnet: 1) je einer innen neben den Schultern und einer, der sich vom Aussenrande ab schraeg nach innen zur Deckenmitte hinzieht. Durch beide Eindruecke treten die Schultern

staerker hervor als bei den anderen Arten; 2) ein flacher Quereindruck hinter dem Basallappen der Decken; 3) ein flacher Quereindruck vor der Deckenmitte. Durch die beiden letzteren Eindruecke woelbt sich das dazwischen liegende Deckenstueck schwach buckelfoermig auf. Seitenrand schmal abgesetzt, stark gerandet, in der Aufsicht beide Raender parallel und fast gerade, in der Seitenansicht jeder Seitenrand stark geschwungen. Man kann sagen, dass durch den Schraegeindruck der basale Teil des Seitenrandes nach unten gedruickt wird und dadurch die Schwingung zustande kommt. Spitzenrand sich verschmaelernd abgesetzt, nach der Naht zu ungerandet, fein entfernt gesaegt. Deckenspitze halbkreisfoermig gerundet. Scheide mit 10 feinen Punktreihen, die aus kleinen, vorn wenig dicht gestellten und hinten sehr feinen Puenktchen gebildet werden. Reihen regelmaessig, durch die Eindruecke der gerade Verlauf von Reihe 5-10 etwas beeinflusst. 1. Reihe nach hinten strichfoermig eingedruickt (dort die sehr feinen Puenktchen etwas dichter), im Nahtwinkel mit der 10. vereinigt; 2. Reihe auf dem Abfall mit der 9. vereinigt; 3. Reihe am Basallappen beginnend, hinten mit der 8. zusammentreffend; 4. Reihe vorn an gleicher Stelle wie die 3. entspringend, hinten weit vorm Hinterrande auf das Ende der 5. treffend, im Basalteil auf dem flachen Buckel etwas nach der Schulter zu gebogen; 6. Reihe innen im Eindruck neben der Schulter beginnend, in der Schulterpartie schwach geschwungen, hinten frei auslaufend; 7. Reihe am weitesten von der Basis entfernt hinter der Schulter anfangend, neben der 6. Reihe frei auslaufend; 8. Reihe vor der 7. an der Schulter beginnend, erst fast gerade, dann parallel dem Seitenrande laufend und hinten auf dem Abfalle mit der 3. vereinigt; 9. Reihe vor der 8. in der Schulterkehle entspringend, neben der 8. laufend, zuletzt mit der 2. sich treffend; 10. Reihe neben dem Seitenrande laufend, in der Schwingung der Deckenrandmitte der 9. sehr nahe kommend, im Nahtwinkel mit der 1. vereinigt.

Mit *A. gibbula* scheint sich eine Weiterentwicklung des *Amplipalpa*-Bautyps anzubahnen. Diese bewegt sich in der staerkeren Auspraegung der Deckenskulptur, die bereits in den beiden naeher mit ihr verwandten Arten *A. thoracica* Uh. und *A. graminum* n. sp. eingeleitet erscheint. Bei letzteren Arten ist eine schwache Erhoehung der Decken hinter dem Schildchen zu sehen, die dann durch die oben beschriebenen Eindruecke bei *A. gibbula* auffaelliger wird. Auch die Schultern werden bei *A. gibbula* staerker betont, ferner ist eine Zunahme des erst im Profil wenig geschwungenen Seitenrandes der Decken festzustellen.

Etwas weiter entfernt verwandt ist *A. laticollis* Baly, bei der beide erwahnte Bildungen, Erhoehung hinter dem Schildchen und Schwingung des Deckenseitenrandes, bemerkbar sind. doch weicht diese Art durch die

Verlaengerung des 3. Fuehlergliedes von obigen 3 Arten ab. Eine mehr oder weniger starke Schwingung des Deckenseitenrandes laesst sich bei allen mir bekannten *Amplipalpa*-Arten finden, doch erfahrt sie bei *A. gibbula* ihre staerkste Auspraegung (Weiterentwicklung).

Ob der starke Hoecker bei einigen *Cassidinae*-Gattungen, z. B. bei *Silana farinosa* Boh. und manchen *Aspidimorpha*-Arten die aeusserste Weiterentwicklung dieses Bautyps darstellt? Die Gattung *Amplipalpa* steht naemlich der gemeinsamen Wurzel der *Cassidinae* und *Hispinae* nahe, und so koennte man in der Deckenskulptur der *A. gibbula* einen Hinweis auf diese Verwandtschaft sehen.

Holotypus, Brasilien: Estado do Rio, Itatiaya, 700 m. 11-1-1935 (J. F. Zikan leg.). Coll. Uhm ann.

3) *Amplipalpa thoracica* Uh.

(19:33-, Abb.) Die Art ist verwandt mit *A. laticollis* Baly. Sie scheint weit verbreitet zu sein. Ich erhielt ein Stueck aus Brasilien: Sta. Catarina, Nova Teutonia, 27°11' Breite und 52°23' Laenge (Fritz Plaumann leg.). Der Holotypus jetzt in coll Uhm ann.

4) *Amplipalpa insecta*, n. sp. (Fig. 4).

Elongata, convexa, supra nitida, viridiaenea, antennae pedesque nigro-viridiaenea, subtus opaca, nigra. Frons depressa, antennae filiformes; prothorax transversus, duplo fere latior quam longus, lateraliter et postice linea tenui, insecta, lateribus angulosis, basim versus sensim convergentibus, apicem versus evidenter convergentibus, sat late marginatis, discus laevis. Scutum transversum, subpentagonale. Elytra parallela, apice rotundo, tenuiter denticulato, regulariter punctato-striata, striae interiores tenues, intervalla lata. — $4,4 \times 1,5$ mm.

Der mir bekannten *A. caerulea* Baly (nicht *coerulea* wie Weise schreibt) aehnlich, unterscheidet sich von ihr durch gestrecktere Gestalt, breiteren und breiter gerandeten und in der Mitte gewinkelten Halsschild, nur schmal gerandete Decken mit fein gezaehnelter Spitze.

Gestreckt, Oberseite glaenzend, gruenmetallisch, Fuehler und Beine dunkel mit schwaecherem Metallglanze, Unterseite matt, schwarzmetallisch. Stirn zwischen den Augen niedergedrueckt, mit einem Porenpunkt im innern Augenwinkel, Augen vorstehend, gegen den Hals abgeschnuert, mit abgegraenzten Schlaefen. Bei *A. caerulea* Baly sind die Augen nicht abgesetzt und ohne besondere Schlaefen. Fuehler schlank, ohne deutliche Breit- und

gezeichnet und die geringe Faeltelung in ihrer Umgebung angedeutet. Reihe 5 und 6 sind spitzenkonvergent, ebenso Reihe 1 und 10. Von den uebrigen Reihen laesst sich nichts darueber feststellen, da die Punkte nach der Spitze zu immer mehr erloeschen. — Fig. 10) *Chalepus erosus* n. sp. Holotypus. Die schwarz gefaerbten Teile der Oberseite punktiert. Rechter Fuehler von der Schmal-, linker von der Breitseite.

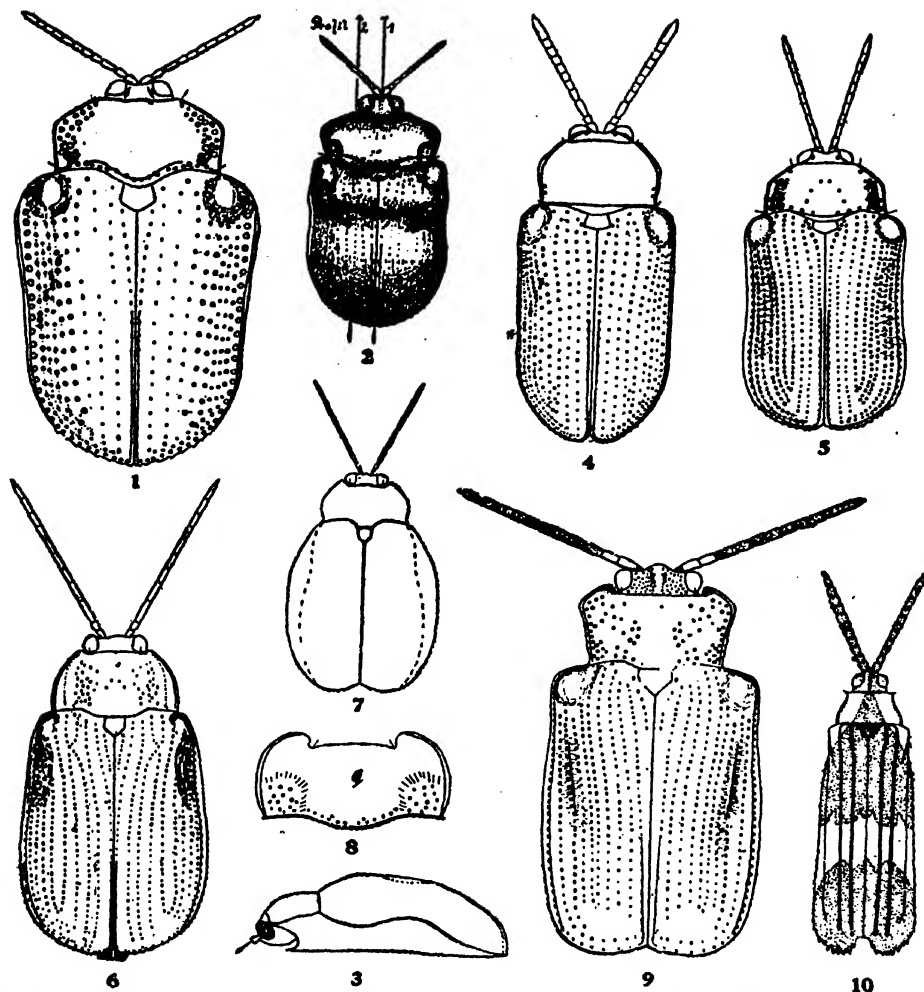


Fig. 1) *Amplipalpa graminum* n. sp. Holotypus. Die feinen Puenktchen in den Reihen 6-9 der linken Decke sollen den Verlauf einer jeden Reihe deutlich machen. Es ist nicht deutlich sichtbar, ob sich Reihe 4 mit 5 vor der Deckenspitze vereinigt, auch der Endverlauf von 6 und 7 ist nicht auszumachen. — Fig. 2) *Amplipalpa gibbula* n. sp. Holotypus. Aufsicht. Bei dieser ist der Kopf etwas nach oben gerichtet worden. Beim Holotypus selbst ist er nach unten geneigt, siehe Seitenansicht, Fig. 3. — Fig. 3) *Amplipalpa gibbula* n. sp. Holotypus. Der Kopf hat seine normale Lage. Profil 1, Medianschnitt; Profil 2, Sagittalschnitt. — Fig. 4) *Amplipalpa insecta* n. sp. Holotypus. Der Kopf ist etwas nach vorn geneigt, sodass die Schläfen sichtbar werden. Die feinen Puenktchen in den Reihen 6-9 der linken Decke sollen den Verlauf der Punktreihen bezeichnen. Ob sich die Reihen 4 mit 5 und 6 mit 7 vor der Spitze vereinigen, ist nicht einwandfrei am Holotypus festzustellen. — Fig. 5) *Amplipalpa teutonica* n. sp. Holotypus. Auf der linken Decke ist der Verlauf der Reihen 6-9 durch eingeschaltete Puenktchen angedeutet, dasselbe ist bei Reihe 4 und 5 nur in der hinteren Deckenhälfte geschehen. — Fig. 6) *Demotissa bicolorata* n. sp. Holotypus. Zwischen den fein punktierten Linien auf dem Halsschild liegt die Wölbung der Scheibe mit ihren fast erloschenen Punkten. Auf den Decken beachte man den Verlauf der 3. und 4. Punktreihe vorn innerhalb der Schulterbeulen. Diese Unregelmässigkeit wird im Schrifttum nirgends erwähnt. Sie ist bei den Gattungen *Demotissa* und *Himatidium* zu beobachten. Das Pygidium mit den beiden Gruben ist teilweise zu sehen. — Fig. 7) *Demotissa ovata* n. sp. Holotypus. Der abgesetzte Seitenrand der Decken ist durch Striche abgetrennt. — Fig. 8) *Demotissa plaumanni* Uh. Holotypus. Halsschild, die Rundung des Seitenrandes zeigend. — Fig. 9) *Cephalotele dilatata* n. sp. Holotypus. Auf dem 8. Zwischenraum ist die schwache Falte hinter der Schulter mit ihrer stärksten Verteilung nach der 8. Reihe zu

Schmalseite, zur Spitze dichter bewimpert, alle Glieder laenger als breit, 3. Glied am laengsten. Halsschild quer, fast doppelt so breit wie lang, etwas vor der Mitte mit abgerundeten Winkeln, dadurch fast 6-eckig. Seiten nach vorn stark, zur Basis nur unmerklich konvergent, mit spitzen Hinterwinkeln, durch eine scharfe Linie schmal und stumpf, aber nicht fein gerandet. Diese Linie randet auch den Hinterrand querueber. Scheibe unpunktiert, ohne Eindruecke in den Hinterwinkeln. Schildchen abgerundet 5-eckig. Decken mit parallelen Seiten, diese fein gerandet, nicht "slightly dilated and reflexed" wie bei *A. caerulea*. Deckenspitze fast halbkreisfoermig abgerundet und fein gezaehnel. Punktreihen regelmaessig, ihre Punkte innen und an der Spitze feiner, Zwischenraeume breit, auch an den Seiten, wo die Reihen bei anderen Arten oft dichter gedraengt verlaufen.

Holotypus. Brasilien: Sta. Catharina, Nova Teutonia, 1935, (F. Plaumann leg.).

Paratypoid. Groesser, 5×2 mm. Seitenrand des Halsschildes breiter und in der Mitte deutlich verflacht gerandet, mit staerker eingegrabener Querlinie am Hinterrande. Aus der gleichen Ausbeute. Vielleicht ist der Holotypus das ♂ und das Paratypoid das ♀. Beide Stuecke in coll. Uhmann.

5) *Amplipalpa teutonica*, n. sp. (Fig. 5).

Elongata, parallela, nitidissima, rufo-testacea, antennae articulo primo excepto tarsique nigra, genua infuscata, elytra coeruleo-metallica. Caput laeve. Antennae quoqueversus graciles, articulis omnibus longioribus quam latis, articulo tertio longissimo. Prothorax transversus, duplo lator quam longus, lateribus tenuiter marginatis, in dimidio postico satis parallelis, in dimidio antico convergentibus, discus convexus, punctis rarissimis, utrinque latere postice impressione punctata. Scutum pentagonale, transversum. Elytra regulariter punctato-striata, margo extremus denticulatus. — 5,8×2,8 mm.

Aeusserlich am naechsten verwandt mit *A. indiscreta* Uh. (64:198-) aus Brasilien. Unterscheidet sich von ihr durch die nicht blaumetallichen Fuehler, durch die nicht einfarbig gelbbraunen Beine und durch ganz rotbraune Unterseite. Bei *A. indiscreta* haben die Fuehler eine deutliche Breit- und Schmalseite, bei unserer Art ist so gut wie kein Unterschied festzustellen. Die Deckenspitze ist bei *A. teutonica* fein, bei *A. indiscreta* grob gezaehnel.

Andere aehnliche Arten mit gelbbraunem Kopfe und Halsschild sind:

a) *A. fulviceps* Ws. aus Bolivia. Diese hat aber keine Eindruecke an den Halsschildseiten; Bauch und Schildchen dunkel.

b) *A. varipes* Ws. aus Columbia. An den Beinen sind nur die Vorder- und Mittelschenkel rotgelb.

c) *A. donckieri* Pic aus Brasilien hat schwarze Unterseite.

d) *A. testaceipes* Pic aus Argentinien hat schwarze Flecken an den Augen.

e) *A. fulva* aus Bolivia hat 1-3 dunkelrote basale Fuehlerglieder, Halschild schmaeler: "kaum um die Haelfte breiter als lang."

f) *A. dentipes* Ws. aus Ecuador hat gezaehnte Schenkel. Diese 6 Arten sind mir nur aus den Beschreibungen bekannt.

Folgende Arten unterscheiden sich durch Umriss und Groesse sofort von *A. teutonica* n. sp.

g) *A. jucunda* Ws. aus Columbia ist im Umriss oval, hat schwarze Schienen und Tarsen. Fuehler viel laenger, ihre Glieder ebenfalls (z. B. ist das 3. ueber doppelt so lang wie bei *A. teutonica*). Halsschild mit ganz verrundeten Vorderecken und ohne Eindruck.

h) *A. marginata* Ws. aus Bolivia ist im Umriss der *A. jucunda* gleich, hat aber gelbe Decken mit stahlblauem Seitenrande.

i) *A. nigripes* Baly, k) *A. cyanipennis* F. und l) *A. basalis* Baly sind deutlich durch ihre Groesse, ueber 7 mm, von *A. teutonica* n. sp. verschieden.

Langgestreckt, parallel, stark glaenzend, ohne Schagrin auf Kopf und Halsschild, rotbraun, Fuehler (ohne Basalglied und Vorderseite des 2. Gliedes) und Tarsen schwarz, Kniee ange-dunkelt, Decken blaumetallisch. Kopf spiegelglatt, am innern Augenwinkel mit einem Porenpunkt, zwischen den hellen (individuell?) Augen ganz leicht niedergedrueckt, vor den Fuehlern mit einer Laengsgrube. Fuehler den Hinterrand des Halsschildes ueberragend, schlank, Schmal- und Breitseite kaum bemerkbar, alle Glieder laenger als breit, Glied 3-10 zylindrisch, 3 am laengsten, etwa gleich 1+2, etwas laenger als 4. Halsschild doppelt so breit wie lang, spiegelglatt, Seiten fein gerandet, in der Basalhaelfte parallel, nach vorn konvergent, beide Richtungen ohne scharfen Winkel zusammenstossend, Vorderrand ziemlich gerade abgeschnitten, Scheibe in der Mitte gewoelbt, in den Hinterwinkeln mit Eindruck, der zum Schildchen vorgezogene Teil durch eine feine Querfalte abgesetzt, mit wenigen, sehr zerstreuten Punkten, die nach den Seiten und den Eindruecken zu etwas dichter stehen. Schildchen quer-fuenfleckig, fein genetzt, etwas dunkler rotbraun. Decken mit 10 regelmaessigen Punktreihen, wenig abgesetztem Seitenrande und fein gezaehneltem Hinterrand, innere Reihen fein, spitzenkonvergent: 1. mit 10., 2. mit 9., 3. mit 8., 4. mit 5. und 6. mit 7.

Holotypus: Brasilien: Sta. Catharina, Nova Teutonia, 4-12-1937 (F. Plaumann leg.). Coll. Uhmann.

6) *Demotispa bicolorata*, n. sp. (Fig. 6).

D. plaumanni Uh. simillima (63:153), sed corpore latiore, ovato-elongata, elytris ovatis, non parallelis, antennis gracilioribus, longioribus, prothorace a basi usque ad marginem anteriorem lateribus convergentibus. — $4,5 \times 2,1$ mm.

Mit *D. plaumanni* Uh. sehr nahe verwandt. Von gleicher Faerbung: Kopf, Halsschild, Vorder- und Mittelbrust hell gelbbraun, Basalglied der Fuehler dunkler rotbraun, diese sonst schwarz, Schildchen, Hinterbrust und Bauch schwarz, Decken metallisch-blau. Hauptunterschiede in den Fuehlern und dem Halsschild. Fuehler viel laenger und duenner, fast bis zur Deckenmitte reichend, Glied 3-11 ueber doppelt so lang wie breit; Halsschild von der Basis bis zu den Vorderecken gerundet-verengt, Vorderecken spitz, nicht stumpf verrundet wie bei *D. plaumanni*, vor den Hinterecken nicht eingezogen, im sehr flachen Eindruck zerstreut, seicht punktiert. Decken fein gesaegt von der Basis ab, bei *D. plaumanni* nur am Spitzenrand. Seitenrand der Decken in der Basalhaelfte nur schmal verbreitert, in der Spitzenhaelfte einfach gerandet wie bei *D. plaumanni*. Pygidium wie bei *D. plaumanni* oben in der Mitte gekielt, beiderseits mit einer Grube fuer die Deckenspitze. Letztes Sternit ausgerandet, ♂.

Holotypus. Brasilien: Sta. Catharina, Nova Teutonia, 4.8.1937 (Fritz Plaumann leg.). Coll. Uhmann.

7) *Demotispa costaricensis* Uh.

Von mir als *Cephalolia* beschrieben (20:229). Der Holotypus befindet sich in coll. Nevermann (Smithsonian Institution, Washington, D. C.). Meine 2 Paratypoide weichen vom Holotypus etwas ab. Sie sind im Abschnitt "Variabilitaet" meiner Diagnose beschrieben. Ein drittes Stueck, das ich durch Herrn Barro, Habana (Bierig leg.) aus Costa-Rica: Vara Blanca, VIII.1938, erhielt, ist von ihnen etwas verschieden: Fuehler heller braeunlich, Glied 2-4 dunkler braun, Schildchen, Hinterbrust und Bauch schwarz. Kopf, Halsschild, Vorder- und Mittelbrust gelbbraun.

8) *Demotispa ovatula*, n. sp. (Fig. 7).

Ovata, nitida, caput, prothorax, ima pars, pedes, articulus primus antennarum gilva, antennae, oculi, scutum nigra, elytra nigra leviter caeruleomicantia. Caput laeve, antennae graciles articulis omnibus longioribus quam latis. Prothorax duplo latior quam longus, laevis, in impressione laterali punctis nonnullis obsoletis, lateribus a basi ad angulos anteriores subacutos curvatim angustatis, angulis posticis acutis. Elytra convexa, regulariter punctato-striata, lateribus deplanatis, post humeros am-

platis, apex quisque rotundatus, exiliter denticulatus, margo ad humeros situs exilissime denticulatus. — $4,5 \times 2,5$ mm.

Am aehnlichsten ist *D. ovatula* n. sp. der *D. garleppi* Uh. (64:200) aus Peru und in meinem Schluessel, 64:201-204 auf S. 204 zu dieser zu stellen. Unterscheidet sich von ihr durch kuerzeren und breiteren Koerper. Das Rotbraun der *D. garleppi* ist bei *D. ovatula* durch helles Gelbbraun vertreten. Schildchen schwarz. Decken statt blaumetallisch schwarzblau, fast schwarz. Unterseite einfarbig gelbbraun.

Auch der *D. bicolorata* n. sp. sehr aehnlich. Laenge, Faerbung der Oberseite und schlanke Fuehler wie bei dieser. Unterscheidet sich von ihr 1) durch breitere, hinter der Schulter staerker verflachte Decken, wodurch der Umriss breiter wird, 2) durch anders gefaerbte Unterseite, diese ganz gelbbraun. Von den ebenfalls sehr aehnlichen *D. plaumanni* Uh. und *pygidialis* Uh. ist *D. ovatula* durch schlankere Fuehler, schon von der Basis ab verschmaelerten Halsschild und den gelbbraunen Bauch unterschieden. Von *D. fulvimana* Pic ist *D. ovatula* durch ebendiese Eigenschaften zu unterscheiden, ferner hat *D. ovatula* noch einfarbige Beine und fast schwarze, leicht blaumetallische Decken. Aehnlich ist sie auch der *D. columbica* Ws. Sie unterscheidet sich von letzterer durch viel schlankere und duennere Fuehler, staerker gerundete und viel flacher abgesetzte Seiten des Halsschildes, breitere, schwarzblaue, fast schwarze Decken und einfarbig, hell gelbbraune Unterseite.

Eirund, glaenzend, hell gelbbraun, auch auf der ganzen Unterseite; Fuehler ohne das Basalglied, Augen und Schildchen schwarz, Decken fast schwarz, mit schwachem, dunkelblauem Metallschimmer. Kopf spiegelglatt. Fuehler schlank, duenn, bis an die Schultern reichend, vom 3. Glied ab dicht behaart, alle Glieder laenger als breit, 1. und 2. Glied kurz, 3. anderthalbmal so lang wie das 1., doppelt so lang wie breit, 4. etwas kuerzer, die folgenden fast so lang und breit wie dieses, 11. Glied zugespitzt, etwas laenger als das 3. Halsschild doppelt so breit wie lang, Seitenrand von den spitzig abgesetzten Hinterecken ab im Bogen gleichmaessig zu den vorgezogenen, ziemlich spitzen Vorderecken verengt, schmal, aber nicht scharf abgesetzt, Hinterrand fein gerandet. Scheibe im Mitteldrittel querueber flach gewoelbt, seitlich breit verflacht, mit seichten, sehr zerstreut und flach punktierten Eindruecken in der Hinterhaelfte der Seiten. Schildchen, glatt, laenglich, verrundet 5-eckig. Decken ziemlich kurz, eirund, gewoelbt, hinter der Schulterbeule am Eindruck am

breitesten, an der Spitze einzeln schwach abgerundet. Hinterm Schildchen schwach buckelfoermig gewoelbt wie bei vielen *Himatidium*-Arten. Seitenrand in der Vorderhaelfte breit, flach abgesetzt, dieser in der Spitzenhaelfte fein, in der Basalhaelfte aeusserst fein gezahnt (Vergr. 25×). Punktreihen regelmässig, innen fein, an der Spitze erloschen punktiert. Zwischenraeume breit und flach. Letztes Sternit an der Spitze abgeschnitten.

Holotypus. Brasilien: E. do Rio, Itatiaya, 700 m. 13.1.1933 (J. F. Zikan leg.). Coll. Uhm ann.

9) *Demotispa garleppi* Uh.

Ein Stueck meiner Sammlung aus Bolivia: Coroico (Garlepp leg.) weicht vom Holotypus etwas durch die Faerbung ab. Fuehler braun statt schwarz, ebenso der Bauch.

10) *Demotispa plaumanni* Uh. (Fig. 8).

Der *D. boliviana* Ws. sehr aehnlich. 4,2-4,8×2 mm. Halsschild doppelt so breit wie lang, in der Regel mit groesster Breite in der Naeh e der Mitte, Seiten nach hinten schwach konvergent, kurz vor den Hinterecken geschwungen-verengt, Ecken als kleine Spitzen vorspringend. Nach den stumpf verrundeten Vorderecken zu sind die Seiten gerundet-verengt, Eindruck in jeder Hinterecke tief, zerstreut und seicht punktiert. — ♂: Letztes Sternit schwach ausgebuchtet, Allotypoid. 4.8.37. ♀: Letztes Sternit hinten abgeschnitten, beiderseits sehr schwach ausgerandet. Holotypus. Beide Typen in coll. Uhm ann.

Einschaltung der neuen Arten in meinen Schlüssel

Mitt. zool. Mus. Berlin, 22:210-204 auf S. 204, 1937.

- 27a. Decken breiter oval, Koerper kuerzer, statt rotbraun hell gelbbraun. Schildchen schwarz. Decken fast schwarz, ganz dunkel-schwarzblau. Unterseite einfarbig gelbbraun. — 4,5×2,5 mm. Fig. 7. (*D. garleppi* Uh. 4,75×2,7). Brasilien *ovacula* n. sp.
33. Halsschild an den Seiten hinten ziemlich parallel, im vorderen Drittel gerundet-verengt, seitlich mit einer langen und breiten, punktierten Grube, die das erste Drittel der Laenge freilaesst. Kopf, Halsschild, Vorder- und Mittelbrust gelblichrot, glaenzend. Stirn erloschen punktiert. — 4,5 mm. (ex Weise). Bolivia. *boliviana* Ws.
- 33a. Halsschild an den Seiten fast parallel oder allmaechlich konvergierend, Grube fast unpunktiert, Stirn glatt, ohne Punkte. Faerbung wie obige. — 3-3,5 mm. Costa-Rica. *costaricensis* Uh.

- 33b. Halsschild von der Basis zur Spitze gerundet-verengt. Fuehler schlank, lang, Glied 3-11 mindestens doppelt so lang wie breit. — 4,5×2,1 mm. (Fig. 6). Brasilien..... *bicolorata* n. sp.
- 33c. Halsschild an den Seiten nach der Mitte zu gerundet-erweitert. Fuehler kraeftiger, kuerzer, Glied 3-11 anderthalbmal so lang wie breit.
- 33d1. Pygidium in der Spitzenhaelfte mit 2 tiefen Gruben. 4,2-4,8 mm. (Fig. 8). Brasilien, Paraguay *plaumanni* Uh.
- 33d2. Pygidium ohne solche Gruben. — 3,5-4 mm. Brasilien..... *pygidialis* Uh.

Demotispa Baly (1858) — *Himatidium* F. (1801) — *Cephaloleia* Chevr. (1843).

Demotispa: 47 Arten bekannt, 17 in meiner Sammlung; 18 Pic'sche Arten.

Himatidium: 42 Arten bekannt (1943), 10 in meiner Sammlung.

Cephaloleia: 180 Arten bekannt, 96 in meiner Sammlung, 27 Pic'sche Arten.

Himatidium wird von Bondar von den *Cassidinae* zu den *Hispinae* gestellt (Rev. Ent. Rio, 11:847, 1940). Diesem Vorgehen schliesse ich mich an. Spaeth schrieb in seiner Arbeit "Die Gattung *Himatidium* Fabr." in Revista de Entomologia, Rio, 9:305, 1938: "die viel schwierigere Unterscheidung von der *Hispinen*-Gattung *Demotispa* ist bis heute noch nicht geklaert." Es kommt noch dazu, dass auch zwischen *Demotispa* und *Cephaloleia* fuer manche Arten der letzteren Gattung Aehnlichkeiten bestehen. Weise schreibt allerdings in Arch. Naturg. 76, 1:83, 1910: "Die Fluegeldecken sind [bei *Cephaloleia*] sehr schmal gerandet (am breitesten noch bei *opaca* und in der Gruppe von *proxima-cognata*) und der Rand erweitert sich hinter der Schulter nicht oder nur unbedeutend. Durch diese Merkmale laesst sich *Cephalolia* stets sicher von den naechst verwandten *Demotispa*-Arten unterscheiden." Dieser Aufzaehlung sind noch hinzuzufuegen: *C. striata* Ws., *deplanata* Uh., *metallescens* Baly und die himatidium-aehnliche *C. aequilata* Uh. *Cephalolia costaricensis* Uh. (20:229-) stelle ich jetzt zu *Demotispa*. Solche Umstellungen werden wohl noch manchmal vorgenommen werden muessen, deshalb ist es noetig, bei Neubeschreibungen darauf zu achten, solche Artnamen zu waehlen, die in den drei Gattungen nur einmal vorkommen.

Die mir bekannten *Demotispa*-Arten teile ich in 3 Gruppen ein. In die 1. Gruppe gehoeren alle die Arten, deren Zugehoerigkeit zu *Demotispa* oder *Himatidium* nicht sofort klar ist. Bei diesen Arten sind die Decken hinter den Schultern seitlich ziemlich stark eingedrueckt, sodass die Schulterbeule dadurch besonders deutlich heraustritt. Gleichzeitig ist neben dem Eindruck der Seitenrand breit verflacht und der ganze Deckenrand bis zum verrundeten Hinterwinkel zwar etwas schmaeler, aber immerhin breit verflacht abgesetzt. Es ist also ein m. o. w. breites Seitendach entwickelt. Hinzu kommt noch, dass der Hinterrand des Halsschildes mit seinen Hinterecken innerhalb der Schulterbeulen liegt, jedenfalls nicht ueber diese hinausragt. Ein deutliches Halsschild-Seitendach ist nicht entwickelt.

1. Gruppe. a) Halsschild breit, nur etwas schmaeler als die Deckenbasis. *D. nevermanni* Uh., *latifrons* Ws., *garleppi* Uh., *ovata* n. sp., *grayella* Baly, *fulvimana* Pic. b) Halsschild schmal, viel schmaeler als die Deckenbasis. *D. bimaculata* Baly, *melancholica* Ws., *peruana* Ws., *costaricensis* Uh. [*Cephalolia*].

D. strandi Uh. weicht von diesen Arten durch fehlenden Schultereindruck ab.

Wenn der Halsschild, bei sonst gleichen obigen Eigenschaften der Decken, die Schulterbeulen mit seinen Hinterwinkeln seitlich ueberragt, dann sind die Arten zu *Himatidium* zu stellen.

a) Halsschild nach vorn rasch konvergent, mit den Decken *nicht* in einer Flucht verrundet, beider Seitendach m. o. w. entwickelt. *Himatidium coccineum* Boh., *rubiginosum* Spaeth, *rubrum* Spth., *fulvum* Boh., *cyanipenne* Boh., *bahianum* Spth.

b) Halsschild ebenso, aber mit den Decken in einer Flucht verrundet. *H. thoracicum* F., *collare* Hbst.

c) Halsschild mit breit entwickeltem Seitendach, die Verrundung weniger vollstaendig. *H. bondari* Spth. Alle diese *Himatidium*-Arten in meiner Sammlung.

In die 2. Gruppe gehoeren alle *Demotispa*-Arten, die sich von obigen durch schmaeler abgesetzten Deckenrand unterscheiden. Dieser ist nur neben dem Schultereindruck staerker verbreitert, sonst aber nur schmal abgesetzt oder in der Spitzenhaelfte nur als einfache Randung vorhanden. Ein Seitendach ist also *nicht* entwickelt.

2. Gruppe. a) Die schmale Randung bleibt bis zu den verrundeten Hinterwinkeln. *D. clermonti* Pic, *columbica* Ws., *bicolorata* n. sp.

b) Diese Randung wird in der Spitzenhaelfte einfach. *D. plaumanni* Uh., *pygidialis* Uh.

Letztere beiden Arten naehern sich dem allgemeinen Bautypus der *Cephaloleia*-Arten. Die Arten der 2. Gruppe sind schon aeusserlich von *Himatidium* leicht zu trennen. Hierher gehoert, vor allem nach Baly's Ab-bildung, auch der Genotypus *D. pulchella* Baly.

In die 3. Gruppe stelle ich *D. uhmanni* Pic, deren Holotypus sich in meiner Sammlung befindet. Bei dieser Art ist sogar der Seitenrand neben dem Schultereindruck recht schmal, gerade von Fuehlerbreite. Der Hals-

schild gleicht dem von *D. melancholica* Ws. — *D. uhmanni* entfernt sich am weitesten vom *Demotispa*-Typ.

Von den sonst noch beschriebenen *Demotispa*-Arten koennen wir keine sicher in unsere 3 Gruppen einfuegen, da in den Beschreibungen unsere Gruppenmerkmale nicht oder nur ungenuegend erwaehnt werden.

Spaeth schreibt in seiner angefuehrten Arbeit, dass von *Himatidium* besonders die Arten seiner neuen Untergattung *Parimatidium* und die der 1. Gruppe von *Himatidium* s. str. Aehnlichkeit mit *Demotispa*-Arten haetten. Nach meiner Einteilung lassen sich die *Parimatidium*-Arten (von den 5 beschriebenen habe ich die folgenden 3 in meiner Sammlung: *rubrum* Boh., *cyanipenne* Boh. und *bahianum* Spaeth) von den mir bekannten *Demotispa*-Arten gut unterscheiden. Von den 9 *Himatidium*-Arten der 1. Gruppe habe ich 3: *fulvum* Boh., *coccineum* Boh. und *rubiginosum* Boh. Von meiner 1. Gruppe der *Demotispa*-Arten sind die sofort durch den breiten Hinterrand des Halsschildes, der mit seinen Hinterecken die Schulterbeulen ueberragt, und das entwickelte Seitendach des Halsschildes zu trennen. Inwieweit die Arten der 2.-4. Gruppe von *Himatidium* mit Arten von *Demotispa* Aehnlichkeit haben, kann ich bei meinem geringen Material nicht entscheiden. Was ich von diesen Arten besitze, gehoert eindeutig zu *Himatidium*.

Ich bin mir vollstaendig bewusst, dass ich mit meinem kleinen Beitrage das Problem *Demotispa-Himatidium* noch nicht geloest habe. Dazu braucht man ein grosses Material und moeglichst alle Arten. Ich glaube aber doch, fuer die wenigen mir vorliegenden Arten einen Schritt zur Klaerung getan zu haben. Der Kern des Problems liegt doch in der Frage: Zwei Gattungen oder nur eine, und weiter: Koennen *Cassidinae* und *Hispinae* als zwei getrennte Subfamilien beihehalten werden. Wenn man beide Unterfamilien als sehr nahe verwandt ansieht, und das sind sie ja, dann ist es durchaus nicht verwunderlich, auf Formen zu stossen, bei denen man zweifeln kann, welcher Unterfamilie sie zuzurechnen sind. Man muss es sogar begruessen, solchen Fragen zu begegnen. Denn der Entwicklungsgedanke erfordert geradezu, Lebewesen feststellen zu muessen, die Eigenschaften aufweisen, die man sonst fuer sich verteilt bei hoeher spezialisierten und dadurch gut unterscheidbaren Formen vorfindet. Wie wir solche Uebergangs- oder vielleicht lieber Ausgangsformen widerspruchslos in unserem System unterbringen, ist eine andere Frage. Hier muss die Kunst des Systematikers eingreifen. Aber sie ist ganz davon abhaengig, ob ihm genuegend Material vorliegt, das entscheidende

Urteil faellen zu koennen. Unter allen Umstaenden ist es noetig, in zusammenfassenden Werken, wie z. B. in Genera Insectorum, immer wieder auf diese "Uebergangsformen" hinzuweisen. W e i s e beschraenkt sich in seinen *Hispinae* in Gen. Ins. 125: 2 auf die kurze Bemerkung: "nur die der Gattung *Amplipalpa*, welche den Uebergang zu den *Cassidinen* bildet...". Wenn ich das *Himatidium rubiginosum* Boh. nochmals als *Demotispa gebieni* beschrieben habe, so lag das an meiner Unkenntnis von der Existenz der Gattung *Himatidium*.

Wuerde es etwas schaden, wenn in einem Schluessel alle die den *Hispinae* und *Cassidinae* gemeinschaftlich verwandten Gattungen mitausgewiesen und auf ihre noch zweifelhafte Zugehoerigkeit aufmerksam gemacht wuerde? Mancher Fehler, der dem Anfaenger unterlaeuft, liesse sich dadurch vermeiden, ja es ist anzunehmen, dass der oder jener Forscher seinen ganzen Scharfsinn zur Loesung solcher Verwandtschaftsprobleme aufwenden wuerde.

Un unserem Fall ist die Moeglichkeit einer letzten Entscheidung noch nicht gegeben, fuer den einzelnen nicht, solange er nicht alles bekannte Material studieren kann und im Prinzip nicht, weil von der Fuelle der jetzt lebenden Arten nur ein geringer Bruchteil bekannt geworden ist.

11) *Cephaloleia dilatata*, n. sp. (Fig. 9).

Subquadrangula, deplanata, supra nitida, subtus opaca, supra viridiaenea, subtus nigra, antennae nigrae, apex abdominis brunneus. Frons plana, punctata, in medio striis duabus exilibus. Prothorax transversus, in quadrante antico angulare dilatatus, lateribus antice valde, postice paulatim convergentibus, marginatis; discus vix impressus, punctis et ubique exilissimis et lateraliter haud dense fortibus, in medio levis. Scutum indistincte pentagonale. Elytra apice singulatim late rotundata, lateribus anguste deplanatis, punctato-striata, striae $10\frac{1}{2}$, intus et apice tenues. Sternitum ultimum valde emarginatum, certe mas. — $5,5 \times 2,5$ mm.

Cephaloleia dilatata n. sp. gehoert in die Naehel der flachgedrueckten *Cephaloleia*-Arten: *depressa* Baly, *elaeidis* Maulik, *deplanata* Uh. Sie weicht von diesen durch die Bildung des Halschildes und den metallisch-gruenen Glanz der Oberseite ab.

Rechteckig, niedergedrueckt, oben gruenmetallisch-glaenzend, unten matt, nebst Fuehlern und Beinen schwarz, Bauchspitze braun. Stirn flach, punktiert, in der Mitte mit 2 feinen Strichelchen, die eine Art schwachen Kiel einschliessen. Augen nicht vorgewoelbt. Fuehler schlank, gleichbreit, bis hinter das Schildchen

reichend, mit laenglichen, wenig voneinander verschiedenen Gliedern. Hallschild nur schwach gewoelbt, quer, abgerundet sechseckig, $1\frac{1}{2}$ mal so breit wie in der Mitte lang, im Spitzenviertel am breitesten, dort fast doppelt so breit wie lang, nach vorn sehr stark, nach hinten allmaehlich verengt, Vorderrand ausgerandet, Vorderwinkel etwas niedergedrueckt, Kegel der Sinnesborste sehr klein (Typus III, vergl. 96:94), Seitenrand gerandet, mit deutlichen Hinterecken, vor diesen aeusserst fein krenuliert, Scheibe etwas uneben, mit doppelter Punktierung, einer aeusserst feinen ueberall und einer starken, zerstreuten an den Seiten. Schildchen laenglich, glatt, undeutlich 5-eckig, dunkel. Decken hinten einzeln breit abgerundet, am Seitenrande schmal und flach abgesetzt, mit $10\frac{1}{2}$ Punktreihen, die innen und an der Spitze sehr fein sind, die 10 laengs des Seitenrandes mit starken Punkten. Zwischenraeume flach, der 8. hinter der Schulter schwach konvex. Letztes Sternit tief ausgerandet, sicher das ♂.

Holotypus. Brasilien: Virginia, 1500 m, S. Minas Gerais, Faz. Campos. V. 1919 (J. F. Zikan leg.). Coll. Uhmann.

12) *Chalepus erosus*, n. sp. (Fig. 10).

Elongatus, supra subopacus, niger, prothorax vittis duabus latis, humeris, vitta transversa mediana elytrorum, pro-, meso-, metasterno, extremo tantum in basi, margine abdominali flavo-testaceis, basi femorum indistincte flavo-testacea. Prothorax transversus, dimidio fere latior quam longus, fortiter et dense punctatus, lateribus convergentibus, paululum sinuosis. Antennae leviter compressae, a latere visae articulo secundo triangulari, sexto transversali, ad apicem angustatus, articulo ultimo subacuminato. Elytra regulariter punctato-striata, interstitiis 2., 4., 8. carinatis, interstitio 6. solo carina humerali. Margo apicalis medio emarginatus, deplanatus, fortiter denticulatus. — 7,5 mm.

Chalepus erosus n. sp. nimmt unter allen mir bekannten *Chalepus*-Arten durch den Ausschnitt am Deckenspitzenrand eine Sonderstellung ein. Der Ausschnitt ist aehnlich dem bei den *Xenochalepus*-Arten *goyasensis* Pic, *ater* Ws. oder *omogerus* Crotch. Dem Habitus nach gleicht die Art dem *Chalepus sternalis* Chap.

Langgestreckt, oben fast matt, schwarz; gelbbraun: 2 breite Laengsbinden auf dem Hallschild (auf ihm ein nach vorn fast spitz zulaufender Mittelfleck und eine sehr schmale Seitenbinde mit Ausnahme der spitzen Vorderecken schwarz); ein dreieckiger Schulterfleck; eine Querbinde in der Deckenmitte mit zackigen Raendern, die sich auf die Epipleuren fortsetzt; die Mitten der Vorder-, Mittel- und Hinterbrust, letztere nur in der Basalhaelfte;

Seitenrand des Bauches; Basis der Schenkel nur undeutlich gelbbraun. Kopf mit 3 Laengsfurchen, die mittelste scharf, die seitlichen schwach. Fuehler mit deutlicher Schmal- und Breitseite. Schmalseite: Glieder in der Laenge wenig voneinander verschieden, mehr oder weniger zylindrisch, 3. vorn breiter als an der Basis, 6. quer. Breitseite: Schwach spindelfoermig, 2. Glied nach unten stumpf dreieckig erweitert, 6. stark quer, 11 eifoermig, zugespitzt, die uebrigen mehr oder weniger schwach quer. Halsschild etwa $1\frac{1}{2}$ -mal so breit wie lang, konisch, Seiten schwach geschwungen, Vorderecken spitz vorspringend, Scheibe dicht und stark punktiert. Decken nach hinten schwach verbreitert, am Nahtwinkel tief ausgeschnitten, mit vorn schmal, hinten breit abgesetzten Raendern, Seitenrand fein gesaegt, Hinterrand stark gezaehnt. Punktreihen regelmaessig, 2., 4. und 8. Raum rippenfoermig, der 6. nur auf der Schulter erhaben. Man kann also sagen: Decken mit 4 Rippen, die 3. nur an der Schulter vorhanden.

Holotypus. Brasilien: Virginia, S. Minas Gerais, Faz. Campos, 1500 m, 25.XI.1915 (J. F. Zikan leg.). Coll. Uhmann.

13) *Xenochalepus cruentus*, n. sp. (Fig. 11).

Elongatus, supra opacus, medio prothoracis carinisque elytrorum nitidis; niger, prothorax sanguineus vitta mediana, margine anteriore, lateribus nigris; elytra sanguinea apice anguste nigro. Antennae articulo tertio cylindrico, longitudine articulos quartum et quintum simul sumptis aequante; prothorax transversus punctis oblitteratis; elytra regulariter punctato-striata, quadricostata, costa tertia longe interrupta, apex brevidentatus. — $9 \times 2\frac{1}{2}$ mm.

Xenochalepus cruentus n. sp. ist durch den Bau des Halsschildes mit *X. guérini* Chap., *jacobi* Uh. und *bahianus* Uh. verwandt. Dieser ist bei allen 4 Arten quer, matt, nur die Mittellinie hat eine glaenzende Stelle. Eigentuemlich ist auch die Stellung und Ausbildung des Borstenkegels in den Vorderecken. Bei allen 4 Arten ist er etwas vom Vorderrand zurueckgerueckt, deutlich, aber nur schwach erhaben (auch bei *X. humeralis* F.). Sonst liegt bei allen mir bekannten *Xenochalepus*-Arten dieser Kegel am Vorderrande selbst. *X. cruentus* weicht von *X. guérini* durch das einfache zylindrische 3. Fuehlerglied ab und gleicht darin dem *X. jacobi* und ist neben diesen zu stellen. Schmal- und Breitseite der Fuehler sehr wenig verschieden. Siehe meinen Schluessel 70:427.

Oberseite matt, Mitte des Halsschildes und die Rippen der Decken glaenzend, Unterseite glaenzend mit matten Seiten.

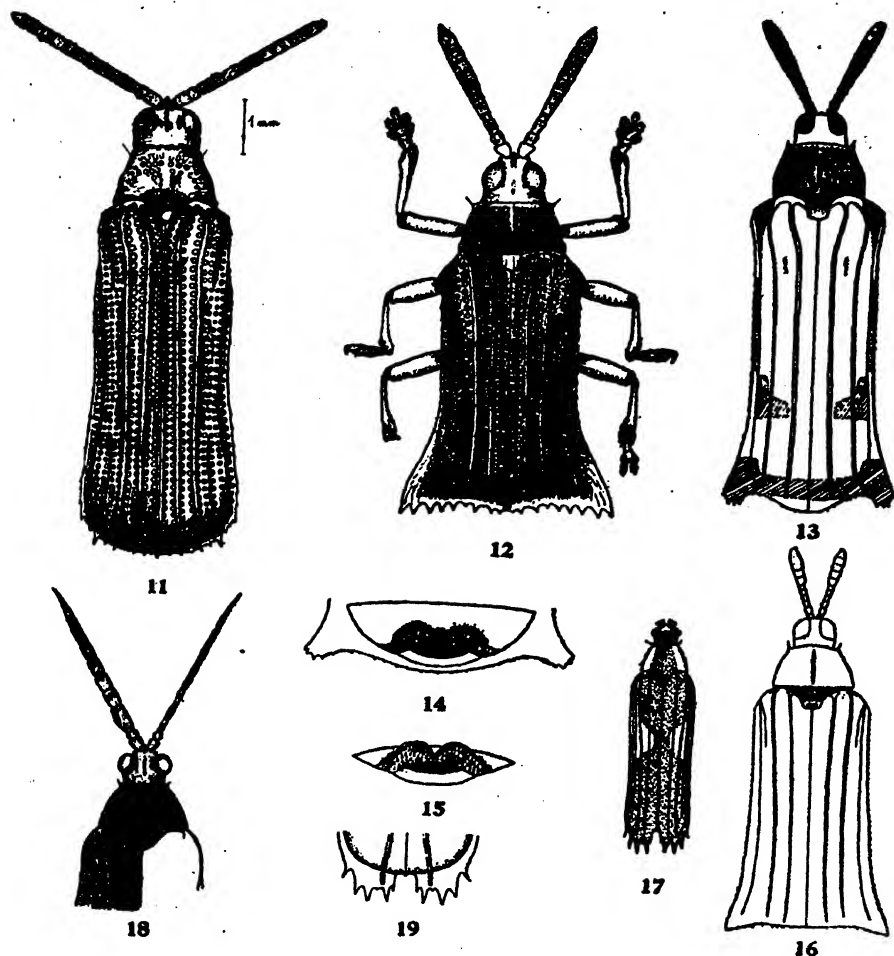


Fig. 11) *Xenochalepus cruentus* n. sp. Holotypus. Kopf mit dem feinen Mittelkiel und anschliessender Furche. Neben jedem Auge der flache Eindruck mit Borstenpunkt. Halsschild mit dem spitzen Borstenkegel vor den Vorderecken, dem flachen Basaleindruck und dem abfallenden Basalrand mit der Querlinie vorm Schildchen. Decken mit der Naht, den beiden breiten Innenrippen, der unterbrochenen 3. Rippe und der vollstaendigen 4. Die beiden letzteren sind nur schmal. — Fig. 12) *Sternoplapsa corumbana* n. sp. Holotypus. ♂. Von der Skulptur ist nur die Punktierung des Halsschildes dargestellt. Halsschild in seinem zum Schildchen vorgezogenen Teile mit einem Querstreifen. Dieser hier hell mit einigen Puenktchen. Die dunkle Zeichnung der Oberseite ist durch Schraffen angedeutet: Augen und Fuehler schwarz; die Zeichnung an den Halsschild-Seiten und auf den Decken metallisch. Letztere Zeichnung ist unscharf durch braeunliche Raender. Unterbrochene Schraffen sollen das darstellen. Die Fuehler sind so gedreht, dass die Spitze des Endgliedes nach aussen zeigt. Auf der Schulter ist der 7. Raum nicht betont. Tastborsten der Halsschild-Vorderecken beim Holotypus fehlend. — Fig. 13) *Sternoplapsa corumbana* n. sp. Holotypus. Endsternit mit der maennlichen Geschlechtsauzeichnung. — Fig. 14) *Sternoplapsa corumbana* n. sp. Holotypus. Siehe 13, schraeg von hinten. — Fig. 15) *Sternoplapsa brunnea* n. sp. Holotypus. Die schwachen Naechte des Fuehlerendgliedes durch Puenktchen angedeutet. Die Spitzen dieses Gliedes durch Drehung der Fuehler nach innen gerichtet. Der beim Holotypus geneigte Kopf ist etwas nach oben gerichtet, daher die von der Beschreibung abweichende groessere Koerperlange in der Figur (6 mm statt 5,5). Halsschild etwas von der Deckenbasis abgesetzt und nach unten geneigt, der artikullierende Teil durch Schraffen gekennzeichnet. — Fig. 16) *Oxyroplata aequicostata* n. sp. Holotypus. Oberseite mit Verteilung der schwarzen Zeichnung (punktirt). — Fig. 17) *Oxyroplata aequicostata* n. sp. Holotypus. Vorderdrittel des Koerpers. Linker Fuehler von der Breitseite, rechter von der Schmalseite. Halsschild mit dem basalen Eindruck, dahinter die scharfe Querfalte, von der der Halsschild zum Schildchen steil abfaellt. — Fig. 18) *Oxyroplata aequicostata* n. sp. Holotypus. Spitzenende der Decken.

Schwarz; blutrot: Halsschild ausser der Mittelbinde, Vorder- und Seitenrand schmal geschwaerzt; Decken, ein schmaler Spitzenrand schwarz; ein Fleck an der Basis der Vorderschenkel. Wie bei den verwandten Arten duerften auch Stuecke mit Ankerbinde zu erwarten sein. Halsschild $1\frac{1}{2}$ -mal so breit wie lang, trapezisch, Punktur erloschen, mit feiner Mittellinie, vorm Schildchen mit flachem Quereindruck. Fuehlerglied 3 einfach zylindrisch, so lang wie 4+5, Glied 4 schwach quer, ebenso 5, dieses etwas kuerzer als 4, folgende Glieder etwas abgesetzt, etwas breiter, 7-10 einander fast gleich, schwach quer. Decken mit 4 Rippen, die 3. in der Mitte weit unterbrochen, mit regelmaessigen Doppelpunktreihen, Schildchenreihe undeutlich, aus 1 oder 2 Punkten bestehend, Seitenrand entfernt fein gesaegt, Hinterrand mit etwa 8 Zaehnen, die wenig laenger als breit sind. Klauenglied beiderseits zahnartig erweitert.

Holotypus. Bolivia: Coroico (Garlepp leg.). Coll. Uhm ann.

Sternoplispa Uhm ann.

Gattungen, bei denen der Vorderrand der Vorderbrust zum Munde vorgezogen ist: *Amplipalpa* Harold, *Chalepotatus* Ws., *Sternothispa* Uh., *Sternoplispa* Uh. und *Sternostena* Ws. *Amplipalpa* ist von allen anderen Gattungen gut geschieden und gehoert in die eigene Gruppe der *Amplipalpini*. *Chalepotatus* und *Sternostena* lassen sich ohne weiteres in die *Chalepini* einreihen, ebenso *Sternothispa* in die *Uroplatini*. Anders verhaelt es sich mit *Sternoplispa*. Der Habitus und der Fuehlerbau sind ganz octhispa- und sternothispa-aehnlich, und daher kommt es, dass man unter Nichtbeachtung der Unterseite, die Arten *nigrohumeralis* Pic und *opacicollis* Uh. zu *Octhispa* stellte. Vielleicht finden sich noch andere *Octhispa*-Arten, die aus gleichen Grunde nicht richtig erkannt worden sind. Auch der Fuehlerbildung legte man wenig Gewicht bei. Man meinte, die letzten 4 bei *Octhispa* sonst verschmolzenen Glieder seien eben bei den beiden genannten Arten durch Naechte etwas deutlicher getrennt geblieben, und nur 10 und 11 seien fast vereinigt.

Die mir vorliegenden 7 *Sternoplispa*-Arten haben die fuer die Gattung charakteristische Fuehlerbildung. Die Fuehler nehmen eine Mittelstellung zwischen denen der *Chalepini* und denen der *Uroplatini* ein. "Die Glieder 8-11 sind zwar zuweilen sehr dicht aneinandergedraengt, aber es lassen sich 8-10 durch die Naechte

immer noch deutlich unterscheiden, erst zwischen 10 und 11 wird die Trennung m. o. w. schwierig." Es ist also nicht ohne weiteres klar, in welche Gruppe *Sternoplispa* zu stellen ist.

Ich glaube, die Einreihung unter die *Chalepini* wird richtig sein. Meine Ansicht ueber die Moeglichkeit einer spaeteren Vereinigung von *Sternoplispa* mit *Sternocthispa* (71:113) halte ich nicht mehr fuer gegeben, da ich gefunden habe, dass der dreigeteilte Vorderrand bei allen bekannten *Sternoplispa*-Arten konstant ist.

K a t a l o g.

Nur das Zitat der Erstbeschreibung wird angefuehrt.

Sternoplispa Uhmann, Arb. morphol. taxon. Ent., 2:237-, Abb. 1, 1940.

1. *brunnea* n. sp.
2. *corumbana* n. sp.
3. *nigrohumeralis* (Pic), Mel. exot. ent. 50:13, 1927 [Octhispa]. — Brasilien.
4. *opacicollis* (Uh.) Rev. Ent. Rio, 5:58, 1935 [Octhispa]. — Amazonas.
5. *rotundata* Uh. Arb. morphol. taxonom. Ent., 7:116, 1940. — Brasilien.
6. *tibialis* Uh., l. c. :114-, Abb. 1, 1940. — Brasilien.
7. *triformis* Uh., l. c. 2:238-, Abb. 1, 1935. — Paraguay.

14) *Sternoplispa corumbana*, n. sp. (Fig. 12-14).

Elongata, parallela, supra et subtus subopaca, collo, medio prothoracis, scuto, carinis elytrorum nitidis. Holotypus: Rufo-testaceus, antennae nigrae; obscure coeruleo-metallica tincta: latera prothoracis, humeri, margo elytrorum in medio, post eum macula discalis subconjuncta costam tertiam et secundam tegente, dens angulorum posticorum, vitta transversa completa apicem elytrorum excipiens. — Allotypoidum: Ut Holotypus, vitta mediana tenui prothoracis accessoria, macula discali elytrorum ampilficata primam fere costam attingente. Antennae gradatim incrassatae, frons laevis, opaca, lineae et mediana et juxta oculos sitae leviter impressae; prothorax leviter transversus, fortiter et dense punctatus, linea mediana tenuiter impressa, angulis anticis prominulis, ante scutum impressus; elytra tricotata, intervallis bifarie punctato-striatis, angulus posticus dente lato, plano, apice rotundato, denticulato, margines haud dense, obsolete denticulati. Tibiae mediae curvatae, in apice dente parvo, acuto, tarsus quartus ante unguem quemque dente parvo. Mas: Sternitum ultimum eminentiis duabus rotundis. Holotypus. — 7,5×2,2 mm.

Sternoplispa corumbana, n. sp. ist der *St. triformis* Uh. sehr aehnlich, letztere weicht ab durch helle Fuehler.

Holotypus. ♂: Gelbbraun, Fuehler schwarz; dunkelblau-metallisch: Seiten des Halsschildes und Schultern, in der Anordnung der Zeichnung auf den Decken mit *St. triformis* uebereinstimmend, der Fleck hinter der Schulter fehlt oder ist nur ganz

schwach angedeutet, dagegen tritt eine Spitzenquerbinde auf, also metallisch: Mitte des Seitenrandes mit schmaler Laengsbinde, die hinten mit einem dreieckigen Fleck zusammenhaengt, der von der 3. Rippe bis zum 3. Zwischenraum reicht; Querbinde vor der Deckenspitze, die auch die Hinterecken bedeckt (54:238, Abb. 1); auf der Unterseite eine Laengsbinde am Seitenrand der Hinterbrust und der flache Deckenzahn. Allotypoid, ♀. Zusaetzlich eine schmale Laengsbinde auf dem Halsschild, der dreieckige Fleck zu einem viereckigen vergroessert, der fast bis zur 1. Rippe reicht, Deckennaht leicht angedunkelt, auf der Unterseite nur der Zahn dunkel. Kopf glatt, matt, vom glaenzenden Hals nicht abgesetzt, Stirn mit 3 feinen Furchen: einer Mittelfurche und je einer neben dem Augeninnenrand. Fuehler zur Spitze verbreitert, die letzten Glieder durch deutliche Naechte voneinander abgesetzt. Halsschild schwach quer, gewoelbt, mit abgestumpften Hinter- und spitz vortretenden Vorderecken, mit schwach gerundet-verengten Seiten, vorm Schildchen mit glattem Quereindruck, mit feiner Mittellinie, ziemlich dicht und stark punktiert, in der Mitte glaenzend, sonst matt genetzt. Schildchen quer, glaenzend. Decken mit glaenzender 1. und 2. Rippe, mit 3 regelmaessigen Rippen, auf den Zwischenstreifen mit regelmaessigen Doppelreihen, deren Punkte m. o. w. quer sind. 6. Streif auf der Schulter mit 2 Zusatzpunkten. Hinterwinkel mit flachem, abgerundetem, nach hinten vorspringendem Zahn, dieser mit gezaehneltem Hinterrand, vor der Nahtcke liegend. Seitenrand mit kleinen Saegezaehnen, der geschwungene Hinterrand mit einigen spitzen Zaehnchen. Mittelschienen leicht gekruemmt, an der Spitze nach innen mit kleinen, spitzen Zaehnchen.

♂ (Holotypus). Endsternit mit einer bei den *Hispinae* noch nicht beobachteten Geschlechtsauszeichnung (Fig. 13, 14). Der Hinterrand ist unmittelbar beiderseits der Mittellinie steil aufgewoelbt. Er umschliesst nach hinten 2 halbmondfoermig begrenzte Beulen. Diese nach vorn ziemlich steil abfallend, dort glatt, glaenzend. Halbmondfoermige Flaechen matt, gekoernelt und behaart (100×), Fig. 14.

♀ (Allotypoid). Endsternit einfach, mit glaenzender, schwach gewoelbter Flaechen am Hinterrande, die beim ♂ zur geschilderten Auszeichnung wird.

Je ein Stueck. Brasilien: Matto Grosso, Corumbá (Stieglmayr leg.). Beide Stuecke in coll. Uhm ann.

15) *Sternoplispa triformis* Uh.

Die Geschlechtsauszeichnung wie bei *St. corumbana* n. sp., die des ♀ aber etwas staerker. Die Flaechе, die beim ♂ die Merkmale traegt, ist beim ♀ glatt, glaenzend, mit schwacher Mittelfurche, beiderseits etwas staerker gewoelbt. Ueber das Geschlecht des Holotypus kann ich jetzt nichts aussagen, mein Paratypoid ist ein ♀.

16) *Sternoplispa brunnea*, n. sp. (Fig. 15).

Elongata, supra subnitidula, subtus nitidula, medio prothoracis, scuto, carinis elytrorum nitidis. Supra brunnea, antennae articulis 2-6 infuscatis, latera prothoracis levissime infuscata, anguli postici elytrorum ianthini, pars inferior et pedes flavo-testacea, anguli postici elytrorum ianthini. Ut *St. corumbana* n. sp., differt prothorace latiore, scuto fovea transversa, angulis posticis elytrorum supra convexis, subtus excavatis, angulum suturalem retro paululum prominentibus. — 5,6 mm.

St. brunnea n. sp. gleicht einer *St. triformis* Uh. ohne dunkle Zeichnung auf Halsschild und Decken, der Zahn der Hinterecken ist aber gewoelbt. Oberseite schwach, Unterseite staerker glaenzend, ebenso Mitte des Halsschildes, Schildchen und die Rippen der Decken. Oberseite braun, Fuehlerglied 2-6 angedunkelt, ebenso die Seiten des Halsschildes, Zahn der Decken-Hinterecken metallisch-blau, Unterseite und Beine gelbbraun, Unterseite des Zahnes metallisch-blau. Kopf glatt, matt, vom glaenzenden Hals nicht abgesetzt, Stirn mit 3 feinen Furchen: einer seichten Mittelfurche und je einer neben dem Augeninnenrand. Fuehler zur Spitze verbreitert, die ersten 8 Glieder gut, die letzten nur durch feine Naechte voneinander getrennt. Halsschild zwischen den Hinterwinkeln $1\frac{1}{2}$ -mal so breit wie von diesen zum Vorderrande lang, weniger gewoelbt als bei den anderen Arten, mit abgestumpften Hinter- und spitz vortretenden Vorderecken, mit schwach gerundet-verengten Seiten, vorm Schildchen mit glattem Quereindruck, mit feiner Mittellinie, ziemlich dicht und stark punktiert, in der Mitte glaenzend, sonst matt genetzt. Schildchen quer, glaenzend, mit feinem Quereindruck. Decken mit 3 regelmaessigen Rippen, 1. und 2. Rippe glaenzend, die feinere 3. in die Woelbung des Zahnes uebergehend, Zwischenstreifen mit regelmaessigen Doppelreihen, deren Punkte m. o. w. quer sind. 6. Streif auf der Schulter mit 2 Zusatzpunkten. Hinterwinkel mit oben gewoelbten und unten ausgehoehltem, nach hinten bis etwas hinter die Nahtcke vorspringenden Zahn. Seitenrand mit Saegezaehnen, Hinterrand geschwungen, mit spitzen Zaehnen. Mittelschienen

leicht gekrueemmt, an der Spitze innen mit kleinem, spitzem Zaehnchen. Klauenglied vor jeder Klaue mit kleinem Zaehnchen. ♂? Holotypus. Letztes Sternit ausgerandet, mit erhabener, glaenzender Flaechе am Hinterrande. Letztes Tergit pygidiumartig in der Ausrandung.

Holotypus. Brasilien: Matto Grosso, Corumbá (Stiglmayr leg.). Coll. Uhmann.

Schluessel der *Sternoplispa*-Arten.

- 1(2) Decken ohne Zahn, Hinterecke abgerundet. — Schwarz, Decken gelbbraun, hinterm Schildchen, Endrittel der Decken, Halsschild in der Mitte m. o. w. und an den Seiten schwarz. Beine schwarz, Schenkel zum groessten Teile gelbbraun. — 5-6 mm. Brasilien: S. Catharina; Paraguay: Alto Paraná..... *tibialis* Uh.
- 2(1) Decken in den Hinterecken mit Zahn.
- 3(8) Zahn flach.
- 4(5) Zahn gewoelbt, kaum laenger als breit. Fuehler gelbbraun, Halsschild mit 3 dunklen Laengsbinden, auf den Decken 2 Schraegbinden und der Zahn metallisch-blau. Zeichnung nicht besonders scharf abgesetzt. — 5,5 mm. Brasilien: S. Catharina..... *rotundata* Uh.
- 5(4) Zahn staerker vorspringend, laenger als breit.
- 6(7) Faerbung und Zeichnung wie bei *S. rotundata* Uh. Zeichnung scharf abgesetzt. — 5,5-6,25 mm. Paraguay: Alto Paraná; Brasilien: S. Catharina..... *triformis* Uh.
- 7(6) Zeichnung etwas anders. Fuehler schwarz, Halsschild mit dunklen Seiten oder noch mit einer dunklen Mittelbinde, Schultern, Mitte des Decken-Seitenrandes, Schraegbinde hinter der Mitte, Zahn und Spitzenbinde blau-metallisch. — 7,5 mm. (Fig. 12-14). Brasilien: Matto Grosso *corumbana* n. sp.
- 8(3) Zahn oben gewoelbt, unten ausgehoehlt.
- 9(10) Oberseite fast einfarbig. Zahn etwa so lang wie breit. — 6 mm. (Fig. 15). Brasilien: S. Catharina..... *brunnea* n. sp.
- 10(9) Zahn laenger als breit.
- 11(12) Zeichnung der Decken breit, schwarz-metallisch: Schultern, unterbrochene Mittelquerbinde, Zahn, Spitzenquerbinde und ein breiter Seitenrand. — 8 mm. Brasilien: Amazonas..... *opacicollis* Uh.
- 12(11) Zeichnung der Decken schmaeler, nicht so dunkel, violettmetallisch: Schultern, Zahn, Seitenrand schmal bis zur Deckenmitte, Querbinden fehlend. — 7-8 mm. Brasilien: Goyaz..... *nigrohumeralis* Pic

17) *Oxyroplata aequicostata*, n. sp. (Fig. 16-18).

Elongata, nigra, macula antica frontali, clypeo, vitta sublaterali et cono setifero, basi femorum tarsisque per partes flavo-testaceis, dimidio antico elytrorum flavo-testaceo macula magna triangulari postscutellari cum dimidio postico nigro conjuncta, linea subhumerali exceptis. Antennae elongatae, compressae; prothorax transversus, crebre ruguloso-punctatus; elytris valde elongatis, regulariter et aequaliter quadricostatis, costa se-

cunda forti, apex deplanatus, spinosus, ad angulum suturalem emarginatus; pedes graciles, femora media et postica minutissime denticulata. — 8×2 mm.

Oxyroplata aequicostata n. sp. ist der *O. clienta* Ws. und *soror* Ws. ähnlich, unterscheidet sich von beiden durch die in ihrer ganzen Laenge gleichmaessig ausgebildeten Rippen, von *O. soror* trennt sie noch die Gestalt der Fuehlerglieder 4-6, die bei *O. aequicostata* nicht quer, sondern laenger als breit sind.

Langgestreckt, Oberseite schwarz, gelbbraun: Kopfschild; Kopfspitze; Halsschildseiten ohne den sehr schmalen Seitenrand; Borstenkegel; Schulterbinde der Decken, die innen von der 2. Rippe begrenzt wird und nach der Deckenmitte zu sich nach der 1. Rippe zu einer Querbinde erweitert, die aber an der Naht unterbrochen ist (oder hinter dem Schildchen ein grosser, lang dreieckiger Fleck und Spitzenhaelfte der Decken schwarz), auf dem 5. Zwischenstreifen bleibt ein Subhumeralstreif schwarz; Basaldrittel der Schenkel; von den Vordertarsen das 2. und 3. Fussglied ohne die Spitze des Klauengliedes; von den Mitteltarsen das 3. Glied nebst dem eingeschlossenen Teile des Klauengliedes; von den Hintertarsen das 3. Glied; Klauenglied fehlt. Kopf zwischen den Fuehlern fein gekielt, auf der matten Stirn mit 3 feinen Laengsfurchen, Kopfschild beulig. Fuehler lang, bis hinter die Mittelhueften reichend, stark zusammengedrueckt. Von der Breitseite: Glied 1 breit, rundlich, 2 quer, rundlich, schmaeler als 1, Glied 3 lang, etwa so lang wie 1+2, vom ersten Drittel ab breiter als 2, Glied 4-6 einander aehnlich, laenger als breit, jedes etwas laenger als die Haelfte von 3, Glied 7 laenger als breit, so lang wie 6, aber schmaeler, 8 am laengsten, sehr spitz zulau fend, laenger als die 3 vorhergehenden, Fuehler vom 5. Glied ab laengsgestreift. Von der Schmalseite: 1 und 2 rundlich, 2 schmaeler als 1, die folgenden Glieder schmaeler als 2, jedes laenger als breit. Halsschild trapezisch, etwas quer, mit wenig geschwungenen Seiten und starkem, schraegem Borstenkegel, gedraengt-runzlig punktiert, hinten etwas quer eingedrueckt, mit scharfer Querfalte, die die Spitzen der beiden Basallappen der Decken verbindet, Mittellinie durch die gedraengte Punktion fast ganz verschwunden, von der Querlinie zum Basalrand steil abfallend. Schildchen viereckig, mit feiner Mittellinie, in einer Flaecheliegend, die von 3 erhabenen Leisten eingeschlossen wird (Fig. 17). Decken langgestreckt, dreimal so lang wie zusammen breit, mit 10½ regelmaessigen Punktreihen, die Punkte zwischen den

beiden Hauptrippen und auf dem schwarz gefaerbten Teile etwas quer, mit erhabenen Quer- und Laengswaenden. Jede Decke mit 4 geraden, fast ganz gleichmaessigen, nicht unterbrochenen Rippen, 2. Rippe am staerksten, hinten mit der 4. fast vereinigt. Basalrand rippenartig erhaben, Seitenrand mit feinen Saegezaehnen, Spitzenrand flach und breit abgesetzt, am Nahtwinkel tief, rechteckig ausgeschnitten, mit 5 langen, spitzen Zaehnen. Beine schlank, Schenkel laenger als die Schienen, Mittel- und Hinterschenkel mit einigen kleinen, spitzen Zaehnchen. Klauenglied vor jeder Klaue zahnfoermig.

Holotypus. Bolivia: Coroico (Garlepp leg.). Coll. Uhmann.

Mycetophilinae de Boracéia, São Paulo (Diptera, Mycetophilidae).

Por John Lane, Departamento de Parasitologia, Faculdade de Higiene e Saúde Pública da Universidade de São Paulo, Brasil.

(Com 61 figuras)

Neste trabalho estudamos uma coleção de exemplares capturados, em grande parte, em Boracéia (Município de Salesópolis, Estado de São Paulo), durante excursões feitas em companhia dos Dr. Lauro Travassos Filho e Sr. Ernesto Xavier Rabello do Departamento de Zoologia da Secretaria de Agricultura do Estado de São Paulo. Tal material foi apanhado à luz e com armadilha de Shannon iscada com frutas em fermentação.

Esta subfamília é aqui delimitada segundo o critério adotado por Edwards (1924) e Tonnoir (1929). Descrevemos um novo gênero e vinte e nove espécies além de elegermos o alótipo de outras. Os números dos exemplares são os da coleção de entomologia do Departamento de Parasitologia e Higiene Rural da Faculdade de Higiene e Saúde Pública da Universidade de São Paulo. Parátipos das seguintes espécies serão depositados no Departamento de Zoologia da Secretaria de Agricultura do Estado de São Paulo e no British Museum (Natural History): *Mycetophila edwardsi*, *taunayi*, *shannoni*, *freemani*, *iheringi*, *confusa* e *Delopsis rufa*, *travassosi*, *rabelloi* e *lunata*.

Tribo Exechini

***Boraceomyia*, nov. gen.**

O gênero *Boraceomyia* separa-se dos demais desta tribo pela ausência da segunda forquilha na asa e a nervura M_1 sinuosa. Caracteriza-se pela ausência de cerdas na propleura, anepisternito, pteropleurito e esternopleurito. O pronoto possui algumas cerdas na divisão anterior. O pleurotergito tem uma grande cerda e duas ou três menores. Escutelo com quatro cerdas, as internas muito longas e desenvolvidas, as externas curtas e delgadas. Asa com apenas a forquilha de M , a nervura M_1 sinuosa, a segunda nervura cubital e a anal distintas. Tíbia anterior com um esporão, as outras com dois.

Genótipo: *Boraceomyia edwardsi* n. sp., a seguir descrita.

Boraceomyia edwardsi, n. sp.

Comprimento do corpo 3,2 mm; asa 3 mm.

Fêmea. — Cabeça: Partes bucais reduzidas e enegrecidas. Antena com uma e dois terços vezes o comprimento da coxa anterior; escapo castanho, toro mais escuro apicalmente, ambos munidos de cerdas grossas e desenvolvidas; flagelo com o primeiro segmento mais escuro na base, o restante castanho-enegrecido. Palpo enegrecido. Fronte e occipício enegrecidos e revestidos de curta pilosidade esbranquiçada, as cerdas marginais ausentes.

Tórax: Mesonoto castanho-escuro em cima, com duas estrias mais claras formando um V e unindo-se posteriormente; as margens com larga faixa branca dando contraste e principiando na porção anterior e terminando antes do escutelo. Escutelo amarelado com as margens internas enegrecidas desde a base até as cerdas, uma porção basal castanha, as margens tarjadas de branco. Postnoto esbranquiçado, salvo duas manchas enegrecidas. Pleuras castanhas, salvo o hipopleurito e esternopleurito que são esbranquiçados.

Pernas: Coxas alongadas, delgadas, esbranquiçadas, as anteriores com uma fileira lateral de cinco cerdas longas que, de antes do meio vai até o ápice, as posteriores com uma cerda na base. Trocânteres esbranquiçados, o anterior com um ponto escuro na frente. Fêmures amarelados. Tíbias e tarsos castanho-escuros, os esporões longos e delgados. Tíbia mediana com cerdas muito curtas, as maiores pouco mais longas que o diâmetro dessa estrutura; cerca de 7 cerdas dorsais, 17 externas, das quais uma é maior e 7 internas. Tíbias posteriores com as cerdas mais longas que o diâmetro das tíbias, sendo 3 dorsais e 9 externas.

Asa hialina com leve tonalidade amarelada. Nervura subcostal alcançando a costal. *R-m* curta, o pecíolo de *M* cerca de quatro vezes mais longo que *r-m*. Balancim com a haste clara e o capítulo enegrecido.

Abdomen: Tergitos dorsalmente castanho-enegrecidos, a margem apical com faixa esbranquiçada, lateralmente amarelados, III a VI com pequenas manchas baso-inferiores enegrecidas, VII totalmente preto e contrastando com os cerci que são amarelados.

Macho. — Desconhecido.

Tipo. — Holótipo fêmea; registrado sob o n. 7.169.

Localidade tipo. — Boracéia, IX.1947 (Rabello, Travassos F.º e J. Lane col.).

Dedicamos esta espécie em homenagem póstuma ao Dr. F. W. Edwards do British Museum (Natural History).

Gênero *Allodia* Winnertz, 1863.

Na América do Sul, apenas uma espécie foi descrita como pertencente a este gênero, *Allodia brevicornis* Enderlein, 1911. Edwards em 1941 compara esta espécie com *Neallodia flavida* Edwards, 1932 e também a coloca no gênero *Neallodia*. As duas espécies abaixo descritas pertencem evidentemente à *Allodia* pois a nervura costal termina em R_5 , a segunda forquilha da asa fica bem aquém da primeira, a nervura anal é reduzida e fraca e Cu_2 vai pouco além da segunda forquilha da asa.

Allodia humilis, n. sp.

Comprimento do corpo 3,3 mm; asa 3,1 mm.

Fêmea. — Cabeça castanho-escura, revestida de pilosidade esbranquiçada. Antena com uma e um terço vezes o comprimento da coxa anterior; escapo, toro e primeiro segmento flagelar amarelados, o restante enegrecido. Palpo amarelado.

Tórax: Mesonoto castanho-escuro, esbranquiçado nas margens, cerdas pré-escutelares muito reduzidas, o disco com cerdosidade longa e castanho-escura, a pilosidade amarelada. Escutelo castanho-escuro e com quatro cerdas marginais longas, a pilosidade esbranquiçada. Pleuras castanhas, o hipopleurito mais escuro; escleritos das pleuras glabros salvo o pleurotergito que possui um grupo de cerdas e o pronoto cujas divisões possuem cinco ou seis.

Pernas: Coxas e trocânteres amarelados, estes com um ponto enegrecido internamente. Fêmures amarelados salvo o mediano e o posterior que são baso-internamente enegrecidos e possuem a porção basal mais escura; tíbias e tarsos escuros e revestidos de cerdosidade muito curta. Tibia mediana com 5 cerdas dorsais, 16 externas e 8 internas. Tibia posterior com 3 cerdas dorsais, 14 externas e 4 internas apicais.

Asa hialina. Primeira forquilha bem aquém da segunda. Balancim amarelado.

Abdomen enegrecido com faixas apicais estreitas dos segmentos III a VII. Tais faixas bem como os lados são extensamente amareladas.

Macho. — Desconhecido.

Tipos. — Holótipo fêmea; parátipo uma fêmea. Registrados sob os ns. 7170 e 7171.

Localidade tipo. — Boracéia, VIII.1947 (Rabello, Travassos F.º e J. Lane col.); XI.1947 (Travassos F.º e Rabello col.).

Allo dia complexa, n. sp.

Comprimento do corpo 3,2 mm; asa 3 mm.

Macho. — Cabeça com tegumento castanho-claro e pilosidade amarelada, as cerdas oculares castanho-escuras. Antena pouco mais de uma e meia vezes o comprimento da coxa anterior; escapo e toro amarelados, este quase duas vezes o comprimento daquele, ambos dorsalmente revestidos de cerdas longas; primeiros segmentos flagelares extensamente amarelados, o restante enegrecido bem como os demais segmentos. Palpo longo, delgado e amarelado.

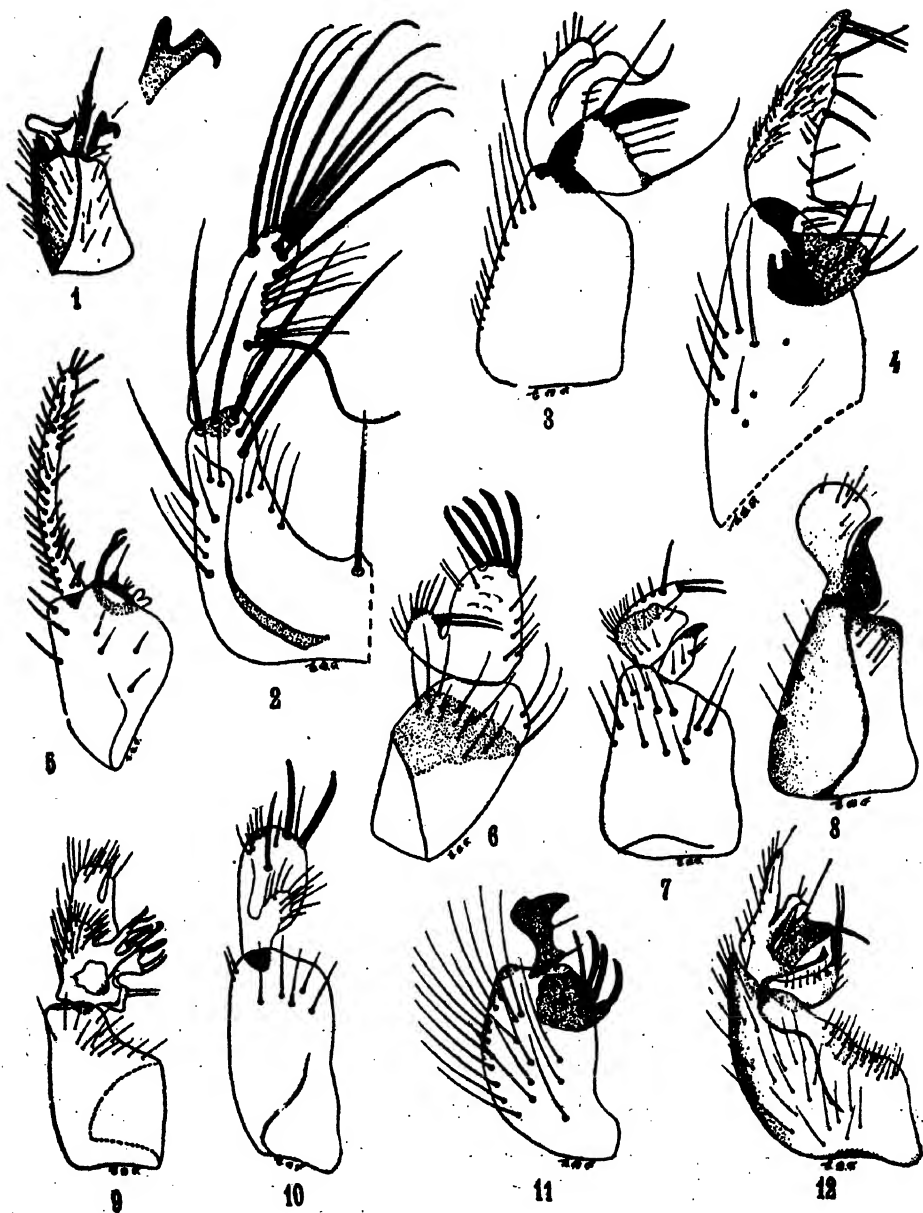
Tórax: Mesonoto castanho, mais escuro no meio onde existe um desenho muito apagado, nos lados esbranquiçado; região pré-escutelar mais escura e com quatro cerdas longas transversalmente dispostas; mancha enegrecida sobre a raiz da asa; revestimento formado por pilosidade amarelada e cerdas enegrecidas. Escutelo castanho, mais escuro no meio, com duas longas cerdas marginais, o disco revestido de cerdosidade curta. Postnoto castanho no meio, esbranquiçado nos lados. Pleuras amareladas salvo a margem posterior do pleurotergito que é mais escura. Pronoto anterior com três cerdas horizontalmente dispostas, o posterior com três ou quatro, pleurotergito com quatro cerdas, demais escleritos glabros.

Pernas: Coxas amareladas, a anterior com uma fileira, as outras com duas no ápice, a posterior com uma cerda basal. Trocânteres amarelados existindo um ponto enegrecido internamente. Fêmures amarelados. Tíbias e tarsos mais escuros. Tíbias com cerdas curtas. Tibia mediana com 4 cerdas dorsais, 9 externas e 6 internas. Tibia posterior com 4 cerdas dorsais, 11 externas e 3 ou 4 internas.

Asa hialina. A segunda forquilha bem aquém da primeira. Pecíolo de *M* do comprimento de *r-m*. que é diagonalmente disposta. Balancim amarelado.

Abdomen com os tergitos castanhos, os ápices com faixas amareladas bem como grandes manchas laterais dessa cor.

Genitália (fig. 1): Basistilo com os lobos fundidos, cerca



Genitália (basistilio e dististilio) de:

- Fig. 1. *Allodia complexa* n. sp. — Fig. 2. *Epicypta inornata* n. sp. — Fig. 3. *Zygomyia bicolor* Edwards, 1934. — Fig. 4. *Mycetophila edwardsi* n. sp. — Fig. 5. *Zygomyia ornaticornis* n. sp. — Fig. 6. *Epicypta paulistensis* n. sp. — Fig. 7. *Mycetophila shannoni* n. sp. — Fig. 8. *Mycetophila mathesonii* n. sp. — Fig. 9. *Mycetophila taunayi* n. sp. — Fig. 10. *Platurocypta neotropialis* Lane, 1947. — Fig. 11. *Zygomyia modesta* n. sp. — Fig. 12. *Mycetophila winnertzi* n. sp. (E. B. Ferraz del.)

de uma e meia vezes a maior largura. Dististilo sub-dividido em diversas estruturas; a primeira alongada, ponteguda e cerdosa nas margens; a segunda fortemente esclerotizada, dividida em dois ramos e lamelada em uma das margens; a terceira quase hialina, sub-dividida, com uma das margens lamelada e possuindo cerdas diferenciadas além de um filamento com cerdas no ápice. Mesosoma impossível de descrever. Nono tergito (fig. 56) com dois terços do comprimento do basistilo, alongado e cerdoso.

Fêmea. — Desconhecida.

Tipos. — Holótipo macho; parátipo um macho. Registrados sob os números 7172 e 7173.

Localidade tipo. — Boracéia, XI.1947 (Rabello e Travassos F.º col.). Parátipo do Estado do Rio de Janeiro, Itatiaia (Maromba, 1600 mts. alt.), IX.1946 (M. P. Barretto col.).

Tribo Mycetophilini

Epicrypta paulistensis, n. sp.

Comprimento do corpo 2,3 mm; asa 2,2 mm.

Macho. — Cabeça com tegumento castanho-escuro, a pilosidade amarelada, as cerdas castanhas. Antena com quase duas vezes o comprimento da coxa anterior; escapo e toro amarelados, dorsalmente cerdosos, aquele pouco mais longo que este; primeiro segmento flagelar amarelado na base, o restante bem como os demais segmentos castanho-escuros. Palpo amarelado.

Tórax: Mesonoto castanho, anteriormente possuindo mancha cuneiforme castanho-amarelada, nos lados e na depressão pré-escutelar esbranquiçada, nesta também com duas manchas alongadas e de coloração enegrecida; região pré-escutelar com seis cerdas transversalmente dispostas; disco revestido de pilosidade amarelada e curta cerdosidade castanha. Escutelo castanho salvo estria longitudinal castanho-escura apagada, cerdas marginais quatro, longas. Postnoto castanho no centro, amarelado nos lados. Pleuras castanhas, as margens de alguns dos escleritos mais escuras; pronoto anterior com cerdas das quais três longas, o posterior com seis ou sete; anepisternito com três cerdas marginais além de muitas outras muito pequenas e espalhadas pelo esclerito; pteropleurito com três cerdas longas; pleurotergito com algumas curtas; pronoto cerdoso, o anterior munido de três cerdas longas.

Pernas: Coxas amareladas, os trocânteres um pouco mais escuros. Fêmures amarelados, apicalmente enegrecidos, princi-

palmente o posterior; tíbias e tarsos gradualmente mais escuros. Tíbia mediana com 5 cerdas dorsais, 4 externas, 2 ventrais e 0 internas. Tíbia posterior com 6 cerdas dorsais, das quais duas pequenas e 6 externas.

Asa com grande mancha enegrecida no meio e que ocupa desde *r-m* até o pecíolo de *M*, este curto e com quase o tamanho de *r-m*; nervura costal indo apreciavelmente além de *R*₅; segunda forquilha bem aquém da primeira. Balancim amarelado.

Abdomen enegrecido, tergito II amarelado na base; tergitos III a VI com estreitas faixas apicais esbranquiçadas.

Genitália (fig. 6): Basistilo ovalado, cerdoso superiormente. Dististilo com mais de dois terços do comprimento do basistilo, interna e basalmente com um processo digitiforme munido de cerdas na margem superior, porção distal larga, com cinco cerdas diferenciadas e grossas na margem, o restante com cerdas delgadas. Mesosoma ovalado, no meio com dois filamentos que, no ápice, formam bicos aduncos. Nono tergito (fig. 39) subtriangular, a margem superior cerdosa.

Fêmea. — Desconhecida.

Tipos. — Holótipo macho; parátipo um macho. Registrados sob os ns. 7174 e 7175.

Localidade tipo. — Boracéia, VIII.1946 (Rabello, Travassos F.º e Lane col.).

Epicypta inornata, n. sp.

Comprimento do corpo 3,8 mm; asa 3,4 mm.

M a c h o. — Cabeça castanho-enegrecida, revestida de pilosidade amarelada. Antena quase duas vezes o comprimento da coxa anterior; escapo e toro amarelados, com cerdosidade castanha; primeiro segmento flagelar amarelado na base, o restante bem como os demais segmentos enegrecidos. Palpo amarelado.

Tórax: Mesonoto castanho, esbranquiçado para os lados, região pré-escutelar com duas manchas enegrecidas; revestimento formado por pilosidade esbranquiçada além de curta cerdosidade castanha e cerdas longas dos lados; região pré-escutelar com seis cerdas transversalmente dispostas, as internas pequenas. Escutelo castanho ornado de extenso desenho enegrecido e pilosidade clara; cerdas marginais quatro, longas. Postnoto amarelado com duas estrias longitudinais enegrecidas. Pleuras castanhas salvo marcações mais escuras; pronoto com três longas cerdas, além de outras menores no lobo anterior, o lobo posterior densamen-

te cerdoso; anepisternito com duas ou três cerdas longas, o restante revestido de curta cerdosidade; pteropleurito com três cerdas longas; pleurotergito com pequena mancha de cerdas. Hipopleurito amarelado.

Pernas: Coxas amareladas, a anterior com cerdas na margem externa, a mediana com um grupo de cerdas no ápice e a posterior com três ou quatro pequenas na base, uma do lado externo e duas ou três cerdas do lado interno do ápice. Trocânteres e fêmures amarelados. Tíbias e tarsos gradualmente mais escuros. Tibia mediana com 6 cerdas dorsais, 4 externas, 3 ventrais e 1 interna. Tibia posterior com 6 cerdas dorsais e 8 externas.

Asa sem mancha, amarelada. Nervura costal indo apreciavelmente além de R_5 . Pecíolo de M pouco mais longo que $r-m$. Primeira forquilha à altura da segunda. Nervura M_2 não alcançando a margem em uma das asas, na outra normal. Balancim amarelado.

Abdomen com os tergitos enegrecidos salvo manchas basais amareladas e que são mais nítidas de IV a VI.

Genitália (fig. 2): Basistilo cerca de uma e meia vezes a maior largura, delgado, espiculoso e cerdoso para o ápice onde existem quatro cerdas diferenciadas. Dististilo sub-dividido em dois lobos; o primeiro com quase o comprimento do basistilo, digitiforme, apicalmente expandido e ornado de densa e longa cerdosidade; o segundo com a metade do comprimento do primeiro e possuindo duas cerdas diferenciadas no ápice (não ilustrado na fig. 2). Mesosoma como na figura 26. Nono tergito (fig. 46) com uma e meia vezes o comprimento do basistilo, sub-triangular, alongado e cerdoso.

Fêmea. — Desconhecida.

Tipo. — Holótipo macho; registrado sob o n. 7176.

Localidade tipo. — Boracéia, XI.1947 (Rabello e Travassos F.º col.).

Platurocypta neotropicalis Lane, 1947.

1947, *Platurocypta neotropicalis* Lane, Rev. Ent., 18: 450.

Capturamos um macho que descrevemos e elegemos o alótipo desta espécie.

Mach o. — Semelhante à fêmea. Genitália (fig. 10): Basistilo pouco mais longo que largo com algumas cerdas no ápice. Dististilo pouco mais curto que o basistilo; existe uma portube-

rância pouco além da base e revestida de cerdas na ponta; o corpo do basistilo arredondado, alongado e com três cerdas diferenciadas na porção apical. Mesosoma (fig. 25) grande, mais largo que longo, lateralmente com duas protuberâncias, no meio com diversas estruturas como na figura. Nono tergito (fig. 40) do comprimento do basistilo, revestido de espiculosidade e cerdoso no ápice.

Tipo. — Alótipo, um macho. Registrado sob o n. 7177.

Localidade do alótipo. — Boracéia, XI.1947 (Rabello e Travassos F.^o col.).

Sceptonia bicolorata, n. sp.

Comprimento do corpo 2,3 mm; asa 2,1 mm.

Fêmea. — Cabeça enegrecida-brilhante e revestida de longa pilosidade amarelada. Antena com quase duas vezes o comprimento da coxa anterior; escapo e toro amarelados, os segmentos flagelares basais amarelados, gradualmente mais escuros até que, os do ápice, são enegrecidos. Palpo castanho-escuro.

Tórax enegrecido-brilhante. Mesonoto pontilhado; densa e homogêneamente revestido de longa pilosidade castanho-clara; cerdas pré-escutelares quatro, longas, amareladas e implantadas nas proximidades do escutelo. Escutelo subtriangular, alongado, revestido de pilosidade castanho-clara e quatro longas cerdas marginais. Pleuras com a seguinte quetotaxia: — pronoto com duas cerdas longas e outras mais curtas; anepisternito com uma fileira de quatro cerdas longas, além de outras pequenas; pteropleurito com três ou quatro cerdas; pleurotergito com algumas.

Pernas: Coxas esbranquiçadas salvo na base da mediana e extensamente na base da posterior que são enegrecidas. Fêmures anterior e mediano esbranquiçados, o posterior com quase a metade distal enegrecida. Tíbias e tarsos castanhos. Tíbia mediana com 3 cerdas dorsais, 2 externas, 1 interna e 0 ventrais. Tíbia posterior com 3 cerdas dorsais e 6 externas.

Asa (fig. 28) sem manchas mas de tonalidade levemente amarelada, principalmente para a ponta. Pecíolo de *M* um pouco longo; forquilha de *M*, além de *r-m* que está diagonalmente disposta. *Cu* simples. *Cu*₂ muito curta. *An*, apesar de mais longa, não alcançando a margem da asa. Balanço esbranquiçado.

Abdomen enegrecido-brilhante salvo o último segmento que é amarelado bem como a longa pilosidade que o reveste.

Macho. — Desconhecido.

Tipo. — Holótipo fêmea; registrado sob o n. 7178.

Localidade tipo. — Boracéia, VIII.1947 (Rabello, Travassos F.º e J. Lane col.).

Gênero *Zygomylia* Winnertz, 1863.

Temos dez exemplares pertencentes a quatro espécies das quais duas novas e duas já descritas. A fim de facilitar o reconhecimento das formas deste gênero, preparamos uma chave para as espécies que ocorrem na região neotropical.

Chave.

1. Asa hialina 2.
- Asa marcada 4.
2. Mesonoto sem desenhos 3.
- Mesonoto ornamentado *brasiliانا* Lane, 1947
3. Abdomen amarelado *aurantiaca* Edwards, 1932
- Abdomen enegrecido *modesta* n. sp.
4. Asa possuindo apenas a mancha mediana.... *bicolor* Edwards, 1934
- Asa com o terço distal enegrecido além de mais uma mancha no meio *ornatipennis* n. sp.

Zygomylia bicolor Edwards, 1934.

1934, *Zygomylia bicolor* Edwards, Rev. Ent., 4: 366.

Esta espécie foi descrita de uma única fêmea. Temos um macho e duas fêmeas e elegemos o macho alótipo desta espécie.

Mach o. — Cabeça castanho-escura, revestida de esparsa cerdosidade dessa cor. Antena com uma e meia vezes o comprimento da coxa anterior; escapo e toro amarelados, com algumas cerdas castanhas; primeiro segmento flagelar extensamente amarelado na base, o restante bem como os demais segmentos enegrecidos. Palpo amarelado.

Tórax: Mesonoto castanho-claro, revestido de pilosidade amarelada e cerdosidade castanho-escura; seis cerdas pré-escutellares transversalmente dispostas, as internas pequenas. Escutelo castanho com quatro longas cerdas marginais. Postnoto castanho. Pleuras castanho-escuras; pronoto com os lobos fundidos, revestido de quatro cerdas longas além de outras menores; anepisternito com cinco cerdas, o restante revestido de pilosidade amarelada; pteropleurito com três cerdas; pleurotergito com pequeno tufo de cerdas.

Pernas: Coxas amareladas, a anterior cerdosa, a mediana e a posterior com algumas cerdas na extremidade que é também mais escura. Trocânteres mais escuros. Fêmures amarelados, o posterior com a margem dorsal enegrecida. Tíbias amareladas,

os tarsos mais escuros. Tíbia anterior com pequena cerda dorsal além do meio. Tíbia mediana com 5 cerdas dorsais, 2 ventrais, 2 externas e 2 ou 3 internas. Tíbia posterior com 5 cerdas dorsais, uma fileira de cerdas curtas ao lado desta e 8 externas.

Asa amarelada, a mancha mediana distinta. A marcação apical é bem mais escura e carregada que na fêmea. Balancim amarelado salvo pequena mancha castanha entre a haste e o capítulo.

Abdomen com os tergitos enegrecidos.

Genitália (fig. 3): Basistilo com os lobos fundidos, cerca de uma e meia vezes mais longos que largos, os lados e ápice revestidos de esparsa pilosidade. Dististilo sub-dividido em dois lobos: o primeiro é sub-triangular, quase um terço do comprimento do basistilo e possui seis cerdas na margem, uma muito grossa, achatada e de ápice rombo, duas longas nas extremidades e três mais curtas no meio; o segundo lobo é bem mais longo que o primeiro e quase alcança dois terços do comprimento do basistilo, é entalhado medianamente e sub-dividido em duas protuberâncias disformes e esparsamente cerdosas. Mesosoma (fig. 36) quase quadrangular mas pouco mais longo que largo, tendo dois entalhes laterais e possuindo estruturas complexas no meio. Nono tergito (fig. 41) com os lobos mais largos que longos, de formato trapezoidal e bastante cerdoso.

Tipo. — Alótipo macho; registrado sob o n. 7179.

Localidade do alótipo. — Boracéia, VIII.1947 (Rabello, Travassos F.^o e J. Lane col.).

As duas fêmeas já mencionadas, também foram capturadas na localidade acima, uma em VIII.1947 e a outra em XI.1947.

Zygomys ornatipennis, n. sp.

Comprimento do corpo 3,2 mm; asa 3 mm.

Macho. — Cabeça com a fronte amarelada e o occipício castanho, ambos revestidos de cerdas castanho-escuras dispostas em fileiras regulares. Antena com uma e dois terços vezes o comprimento da coxa anterior; escapo e toro amarelados, com algumas cerdas mais grossas e maiores em cima; flagelo com a base do primeiro segmento amarelada, o restante bem como os demais segmentos enegrecidos. Palpo castanho-escuro.

Tórax: Mesonoto castanho, levemente mais claro no meio, revestido de cerdosidade castanha, a região pré-escutelar com quatro cerdas longas e transversalmente dispostas. Escutelo da

cor do mesonoto, com quatro cerdas marginais longas. Postnoto castanho. Pleuras com o pronoto, anepisternito e pteropleurito amarelados, os outros escleritos castanhos exceto o hipopleurito que é amarelo-claro; divisão anterior do pronoto com três cerdas longas, a posterior com duas longas além de outras menores; anepisternito com seis cerdas longas além de outras menores na margem superior; pteropleurito com três cerdas; pleurotergito com quatro ou cinco cerdas.

Pernas: Coxas amareladas. Trocânteres um pouco mais escuros. Fêmur anterior e mediano amarelados, o posterior dessa cor salvo no quarto distal que é enegrecido. Tíbia anterior amarelada bem como as outras, esta com um as outras com dois esporões; tanto a tíbia mediana como a posterior enegrecidas no ápice. Tíbia anterior com uma cerda dorsal além do meio. Tíbia mediana com 4 cerdas dorsais, 3 externas e 1 ventral. Tíbia posterior com 4 cerdas dorsais, 9 externas e 3 ou 4 cerdas apicais. Tarsos escuros.

Asa com mancha mediana escura que, da região costal, vai até o ramo inferior da média e é de formato sub-quadrangular; uma segunda mancha ocupa mais que o terço distal e atravessa a asa; o restante é hialino. Balancim com a haste clara e o capítulo enegrecido.

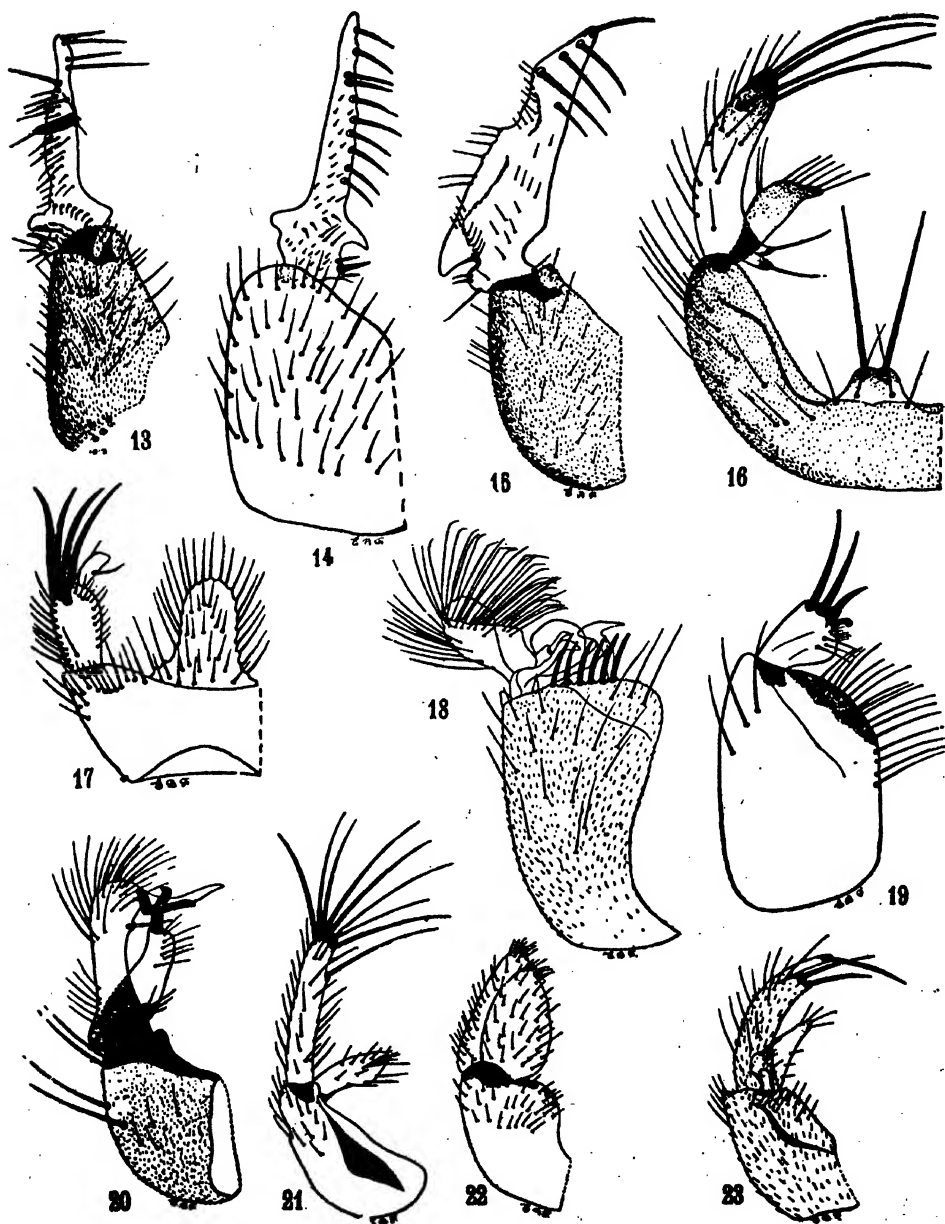
Abdomen com os tergitos enegrecidos; ventralmente com pequenas manchas baso-laterais amareladas.

Genitália (fig. 5): Basistilo com os lobos fundidos, pouco mais longos que largos e esparsamente cerdosos. Dististilo sub-dividido em dois lobos: o primeiro inerte, sub-dividido em um gancho encurvado para baixo e de ápice bifido, o outro filamento é delgado e termina em uma forquilha, entre tais estruturas e na porção mediana existe uma protuberância provida de pequena cerda; o segundo lobo é muito longo (quase duas vezes o comprimento do basistilo), delgado, encurvado e densamente revestido de cerdosidade curta. Mesosoma (fig. 35) mais grosso para a base, adelgado para o ápice, revestido de tênue espiculosidade. Nono tergito (fig. 42) delgado, mais longo que o basistilo, piloso e esparsamente cerdoso.

Fêmea. — Difere do macho pela coloração bem mais carregada da asa e do abdomen cujos cerci são amarelados.

Tipos. — Holótipo macho, alótipo fêmea; registrados sob os ns. 7182 e 7425.

Localidade tipo. — Boracéia, VI.1947 e XI.1947 (Rabello, Travassos e J. Lane col.).



Genitália (baístilo e dististilo) de:

- Fig. 13. *Mycetophila theresae* Edw. — Fig. 14. *Mycetophila fraemant* n. sp. —
 Fig. 15. *Mycetophila boracensis* n. sp. — Fig. 16. *Delopsis ornata* n. sp. — Fig.
 17. *Delopsis boschi* n. sp. — Fig. 18. *Delopsis travassosi* n. sp. — Fig. 19. *Delopsis*
humboldtii n. sp. — Fig. 20. *Delopsis pluripunctata* n. sp. — Fig. 21. *Delopsis lunata*
 n. sp. — Fig. 22. *Mycetophila borgmeieri* Edwards, 1932. — Fig. 23. *Delopsis*
rabelloi n. sp. (E. B. Ferraz del.)

Zygomyia brasiliiana Lane, 1947.

1947, *Zygomyia brasiliiana* Lane, Rev. Ent., 18: 452.

Temos uma fêmea de Boracéia, VI.1947 (Rabello e Travassos F.º col.). O exemplar concorda com o tipo. As cerdas pré-escutelares são quatro, transversalmente dispostas.

Zygomyia modesta, n. sp.

Comprimento do corpo 2,8 mm; asa 2,6 mm.

M a c h o. — Cabeça castanho-escura, revestida de pilosidade mais clara. Antena com uma e dois terços vezes o comprimento da coxa anterior; escapo e toro amarelados, com cerdas; primeiro segmento flagelar amarelado na base, o ápice bem como os demais segmentos enegrecidos. Palpo castanho-escuro.

Tórax: Mesonoto castanho-claro com um desenho apagado e mais escuro; revestido de cerdosidade amarelada, a região pré-escutelar com quatro cerdas transversalmente dispostas. Escutelo castanho, mais escuro na base. Postnoto castanho. Pleuras castanhas, as margens de alguns dos escleritos mais escuras; pronoto anterior com três cerdas, o posterior com duas ou três cerdas maiores e outras menores; anepisternito com sete cerdas maiores além de outras menores; pteropleurito com cinco ou seis cerdas; pleurotergito com pequeno grupo de cerdas.

Pernas: Coxas amareladas, a anterior cerdosa, a mediana com um tufo e a posterior com uma cerda no ápice. Trocânteres amarelados. Fêmures também amarelados mas revestidos de cerdosidade escura. Tíbias e tarsos mais escuros. Tíbia anterior com 2 cerdas dorsais. Tíbia mediana com 5 cerdas dorsais, 2 ventrais, 3 externas e 3 ou 4 internas. Tíbia posterior com 5 cerdas dorsais e 7 externas.

Asa sem mancha porém de tonalidade enegrecida. Pecíolo de *M* mais curto que *r-m*. Balancim com a haste amarelada e o capítulo castanho.

Abdomen dorsalmente enegrecido.

Genitália (fig. 11): Basistilo com os lobos fundidos, uma e um terço vezes mais longos que largos, lateralmente revestidos de longas cerdas. Dististilo sub-dividido em dois lobos fortemente esclerotizados; o primeiro disforme alongado e com duas cerdas internamente; o segundo com grandes cerdas e voltado para baixo, existe também uma estrutura alongada (não ilustrada no desenho) que termina em uma cerda disforme. Mesosoma impossível de descrever. Nono tergito (fig. 57) sub-triangular,

do comprimento do basistilo, adelgado no ápice e revestido de longa cerdasidade.

Fêmea. — Semelhante ao macho exceto o tórax que é mais claro e o tamanho que é menor (corpo 2,2 mm; asa 2 mm).

Tipos. — Holótipo macho; alótipo fêmea; parátipos um macho e duas fêmeas. Registrados sob os ns. 7183 a 7185 e 7427.

Localidade tipo. — Boracéia, VI.1947 (Rabello e Travassos col.); XI.1947 (Rabello, Travassos F.º e J. Lane col.); 1 parátipo fêmea de Cajurú, X.1947 (M. P. Barretto col.).

A fêmea de Cajurú mostra faixas basais amareladas e um tanto largas no abdomen.

Gênero *Mycetophila* Meigen, 1803.

As espécies por nós estudadas, pertencentes aos gêneros *Delopsis* e *Mycetophila*, possuem quatro cerdas longas e desenvolvidas na margem posterior do escutelo. As descrições de Enderlein (1911) são frequentemente omissas em muitos dos característicos importantes, de maneira que difícil se torna a identificação das mesmas. Por outro lado, as espécies descritas por Philippi (1865) apresentam, segundo as descrições, os seguintes característicos que as separam das nossas: *M. congnata*, *fascipennis*, *atricornis* e *nigroventralis* com duas manchas na asa (possivelmente algumas pertençam ao gênero *Zygomyia*). *M. apicata* tem a asa escurecida no meio enquanto que *M. heteroneura* (semelhante a *D. johannseni* Lane, 1946) não possui, contudo, a terceira nervura longitudinal completa. Nas espécies que ora estudamos, não encontramos tais caracteres e, por esse motivo, não incluímos as espécies acima nas nossas chaves.

Damos a seguir uma chave para as espécies que conseguimos identificar e incluímos outras segundo as descrições. As espécies que conhecemos apenas pelas descrições, vão acompanhadas de um asterisco.

Chave.

- | | |
|--|-------------------------|
| 1. Asa com manchas escuras | 2. |
| — Asa sem manchas | 13. |
| 2. Asa apenas com a mancha mediana | 4. |
| — Asa com duas ou mais manchas | 3. |
| 3. Asa enfuscada mas com duas manchas distintas. | <i>splendida</i> n. sp. |
| — Asa com a mancha mediana e diversas outras manchas no ápice. | <i>edwardsi</i> n. sp. |
| 4. Mesonoto com manchas ou estrias | 5. |
| — Mesonoto sem ornamentação | 10. |
| 5. Abdomen com faixas nos tergitos | 6. |

- Abdomen com os tergitos enegrecidos; mesonoto sem a mancha enegrecida sobre a raiz da asa..... *taunayi* n. sp.
- 6. Abdomen com os lados dos tergitos escuros..... 7.
- Abdomen com extensa marcação lateral nos tergitos e que origina grande mancha amarelada; mesonoto possuindo mancha enegrecida sobre a raiz da asa..... *mathesoni* n. sp.
- 7. Tergitos com faixas claras no ápice..... 8.
- Tergitos com tais faixas na base (às vezes também no ápice)... 9.
- 8. Hipopleurito enegrecido; mesonoto com tegumento escuro e possuindo mancha escura sobre a raiz da asa..... *winnertzi* n. sp.
- Hipopleurito esbranquiçado; mesonoto com tegumento mais claro e sem mancha sobre a raiz da asa..... *shannoni* n. sp.
- 9. Asa amarelada, a mancha nítida..... *theresae* Edwards, 1932
- Asa hialina, a mancha um tanto apagada..... *freemani* n. sp.
- 10. Mesonoto e escutelo concolores 12.
- Mesonoto de cor diferente da do escutelo e castanho-ocráceo, apagado, pubescência e cerdas escuras 11.
- 11. Coxas posteriores amareladas; asa com mancha pequena porém distinta e não invadindo a célula basal.... **catharinae* Edwards, 1932
- Coxas posteriores com mancha escura; asa com a mancha diluída e invadindo a célula basal *boracensis* n. sp.
- 12. Abdomen com os triângulos um pouco mais escuros..... **dominica* Curran, 1927¹
- Abdomen com tais triângulos mais claros.. **incipiens* Williston, 1896
- 13. Mesonoto ornamentado 14.
- Mesonoto unicolor 17.
- 14. Mesonoto sem a mancha pré-escutelar escura e mormente escuro.. 15.
- Mesonoto amarelado e provido de manchas pré-escutelares escuras.. *ihetengi* n. sp.
- 15. Mesonoto com o terço anterior amarelado, o restante enegrecido; cabeça, escutelo e abdomen castanho-escuros *?planiventris* Enderlein, 1911
- Mesonoto com três estrias centrais escuras, o restante esbranquiçado; escutelo mais claro que o mesonoto; abdomen castanho..... 16.
- 16. As manchas mesonotais enegrecidas e unidas..... *borgmeieri* Edwards, 1932
- Tais manchas separadas e castanhas..... *confusa* n. sp.
- 17. Mesonoto amarelo-ocre 18.
- Mesonoto castanho 20.
- 18. Abdomen com áreas mais escuras 19.
- Abdomen unicolor; cabeça amarelo-ocre; mesonoto amarelado-ocre com pruinósidade esbranquiçada nos lados; abdomen castanho-avermelhado; fêmur posterior com mancha apical escura..... **nodulosa* Williston, 1896
- 19. Escutelo amarelo-ocre; abdomen amarelo-ocre, os segmentos distalmente enegrecidos; balancim amarelado **merdigera* Knab e Zwaluwenburg, 1918
- Cabeça amarelo-ocre bem como o mesonoto e o escutelo; abdomen amarelo-ocre salvo o quarto distal de I e a metade distal de V que são castanho-escuros; tibia posterior apicalmente escura..... **luederwaldti* Enderlein, 1911
- 20. Cabeça castanho-escura; mesonoto castanho salvo nos lados e na região pré-escutelar que é amarelo-ocre; escutelo amarelo-avermelhado; abdomen castanho-escuro..... **dolosa* Williston, 1896
- Cabeça amarelada; mesonoto amarelo-ocre na frente, a porção posterior castanha; escutelo castanho; abdomen castanho-avermelhado;

fêmur posterior com o quarto distal escuro.....
 *longicalcar Enderlein, 1911

Nota: Pelas descrições, *M. dominica* Curran parece ser sinônima de *M. incipiens* Williston, 1896.

Mycetophila splendida, n. sp.

Comprimento do corpo 7 mm; asa 6 mm.

M a c h o. — Cabeça castanha, revestida de cerdas e pilosidade castanho-escura. Antena com o escapo muito alongado, isto é, cerca de duas e meia vezes o comprimento do toro, ambos amarelados, base do primeiro segmento flagelar amarelada, o ápice bem como os demais segmentos gradualmente se tornando castanhos e mais escuros para a ponta. Palpo amarelado.

Tórax: Mesonoto castanho, as margens tarjadas de branco existindo porém uma faixa castanha sobre a raiz da asa; revestimento formado por pilosidade esbranquiçada e cerdosidade castanho-escura; região pré-escutelar com duas cerdas longas. Escutelo castanho-escuro, as margens esbranquiçadas. Postnoto castanho-claro, os lados esbranquiçados. Pleuras com o pronoto amarelado, revestido de longa cerdosidade; anepisternito amarelado no meio, as margens enegrecidas, com três longas cerdas na margem posterior, além de outras na porção anterior; esternopleurito amarelado; pteropleurito enegrecido e com cinco cerdas; pleurotergito também enegrecido e com algumas cerdas; hipopleurito amarelo-claro.

Pernas: Coxas amarelo-claras, os ápices um pouco mais escuros. Trocânteres com porções mais escuras. Fêmures amarelados, o ápice do mediano e do posterior enegrecidos. Tibias amareladas, a mediana e a posterior com extensa marcação enegrecida no ápice. Tarsos mais escuros. Tibia mediana com 3 cerdas dorsais, 4 externas, 3 internas e uma fileira de aproximadamente 12 cerdas ventrais, acima das internas existem 5 pequenas cerdas. Tibia posterior com 5 cerdas dorsais e 6 externas, além de outras cerdas menores.

Asa (fig. 34) amarelada, com duas manchas enegrecidas sendo uma no meio e a outra para o ápice; porção inferior da asa enegrecida. Segunda forquilha aquém da primeira. Balançim com a haste um pouco escurecida para a ponta, o restante amarelado.

Abdomen enegrecido, os lados do tergito III, a base e ápice de IV, o ápice de V e VI amarelados. Esternitos aparentemente amarelados.

Genitália (fig. 34): Basistilo cerca de uma e meia vezes a maior largura, densamente cerdoso. Dististilo quase tão longo quanto o basistilo e com as estruturas como na figura 28. Mesosoma (fig. 37) alongado, com dois filamentos laterais, a estrutura do ápice sub-quadrangular. Nono tergito (fig. 39) com dois terços do comprimento do basistilo e possuindo algumas cerdas diferenciadas na margem súpero-interna.

Fêmea. — Desconhecida.

Tipos. — Holótipo macho; parátipos dois machos. Registrados sob os ns. 7435 e 7437.

Localidade tipo. — Boracéia, VIII, X e XI.1947 (Rabello, Travassos F.º e J. Lane col.).

Mycetophila edwardsi, n. sp.

Comprimento do corpo 4,2 mm; asa 4 mm.

Macho. — Cabeça amarelada com leve tonalidade esverdeada, revestida de pilosidade amarelada, as cerdas oculares e do vértice castanho-escuras. Antena quase duas vezes o comprimento da coxa anterior; escapo e toro amarelados com raras cerdas castanhas; primeiro segmento flagelar amarelado, segundo ao oitavo parcialmente amarelados na base, o restante bem como os demais segmentos enegrecidos. Palpo castanho-claro.

Tórax: Mesonoto com tegumento acinzentado nas margens, no meio e anteriormente uma mancha cuneiforme castanho-clara não formando, no entanto, desenho muito distinto; revestido de pilosidade amarelada e cerdas enegrecidas e curtas no meio, mais longas nas margens; região pré-escutelar com quatro cerdas longas. Escutelo com faixa longitudinal mediana enegrecida, nas margens amarelado. Postnoto com estria longitudinal castanho-escura, os lados também amarelados. Pleuras amareladas salvo as margens do anepisternito, pteropleurito, pleurotergito, porção anterior do esternopleurito e mancha escura no hipopleurito que são castanho-escuras; anepisternito e pteropleurito com uma fileira de quatro cerdas; pronoto com três cerdas anteriores, a divisão posterior com cinco ou seis; pleurotergito com um grupo de quatro cerdas.

Pernas: Coxas amareladas, o ápice com pontos enegrecidos; a anterior revestida de pilosidade e cerdas, a mediana com duas cerdas distais e a posterior com uma. Trocânteres internamente castanhos. Fêmures amarelados, densamente revestidos de pilosidade. Tíbias e tarsos gradualmente mais escuros. Tíbia media-

na com 5 cerdas dorsais, 3 externas e 6 internas. Tibia posterior com 4 cerdas dorsais, 5 externas e cerca de 12 sub-dorsais pequenas.

Asa (fig. 32): De coloração amarelada com uma mancha mediana que invade a nervura transversa, a base de *R* e a forquilha de *M*. O ápice com manchas escuras nas células de *R*, do setor radial, de *M* e de *Cu*. Pecíolo de *M* muito curto e à altura de *r-m*. Forquilha de *Cu* aquém da de *M*. Balancim totalmente amarelado.

Abdomen com tegumento castanho, manchado de amarelo, os ápices dos segmentos com faixas distais claras.

Genitália (fig. 4): Basistilo alongado, pouco mais de duas vezes a maior largura, esparsamente revestido de cerdas, o ângulo súpero-interno com uma protuberância arredondada e possuindo seis cerdas diferenciadas, para a margem, além de outras curtas internamente. Dististilo cerca de um quarto mais curto que o basistilo, engrossado na base onde existe pequena saliência, a margem interna com seis cerdas diferenciadas. Mesosoma em formato de pera, quase tão largo quanto alto, chanfrado no meio onde existe uma estrutura arredondada, os lados com protuberâncias de ápice adunco.

Fêmea. — Com os característicos do macho salvo o abdomen que é, em alguns exemplares, mais claro e extensamente manchado.

Tipos. — Holótipo macho; alótipo fêmea; parátipos duas fêmeas e quatro machos. Registrados sob os ns. 7186 a 7190.

Localidade tipo. — Boracéia, VIII.1947 (Rabello, Travassos e J. Lane col.); XI.1947 (Rabello e Travassos F.º col.).

O nome da espécie acima descrita é dado em homenagem póstuma ao Dr. F. W. Edwards do British Museum (Natural History).

Mycetophila taunayi, n. sp.

Comprimento do corpo 3 mm; asa 2,8 mm.

Macho. — Cabeça com tegumento castanho, revestida de pilosidade amarelada, as cerdas oculares e do vértice castanho-escuras. Antena com quase duas vezes o comprimento da coxa anterior; escapo, toro e a base dos três primeiros segmentos flagelares amarelados, o restante bem como os demais segmentos enegrecidos. Palpo amarelado.

Tórax: Mesonoto com mancha cuneiforme principiando na margem anterior, de coloração castanho-escura, o restante casta-

nho-acinzentado, porém mais claro para as margens; região pré-escutelar com duas manchas sub-quadrangulares enegrecidas e seis cerdas longas e transversalmente dispostas. Escutelo castanho-enegrecido salvo pequena porção das margens laterais que é amarelada. Pleuras com tegumento castanho-escuro bem como o hipopleurito; pronoto com três cerdas longas na divisão anterior, a posterior com duas cerdas mais longas além de muitas outras pequenas; anepisternito com quatro cerdas longas além de outras menores e amareladas espalhadas pelo esclerito; pteropleurito com quatro ou cinco cerdas; pleurotergito com duas ou três cerdas pequenas.

Pernas: Coxas amareladas, a anterior pilosa e cerdosa na margem, a mediana com três ou quatro, a posterior com uma cerda distal. Trocânteres e fêmures amarelados. Tíbias e tarsos gradualmente mais escuros. Tibia mediana com 5 cerdas dorsais, 2 ou 3 ventrais, 3 ou 4 externas e 2 ou 3 internas; tibia posterior com 6 cerdas dorsais e 6 externas.

Asa de tonalidade amarelada, no meio existe grande mancha que, de *r-m* vai além da forquilha de *M*. Tal mancha é nítida na base mas dilui-se para o ápice. Notamos, na nossa série de exemplares, que é bastante variável em tamanho, e, em alguns exemplares muito apagada. Segunda forquilha pouco aquém da primeira. Balancim amarelado.

Abdomen enegrecido, a genitália castanho-acinzentada.

Genitália (fig. 9): Basistilo com os lobos fundidos e pouco mais longos que largos, sub-quadrangulares e apenas cerdosos na porção anterior. Dististilo sub-dividido e com estruturas complexas como se pode apreciar na ilustração. Mesosoma do comprimento do basistilo, ovalado, alongado, mais esclerotizado no meio, os lados com filamentos recurvados para dentro, no meio e apicalmente com diversas estruturas complexas. Nono tergito (fig. 47) alongado, pouco mais curto que o comprimento total do basistilo e o dististilo, homogêneamente revestido de espiculosidade, a cerdosidade densa, delgada e curta.

Fêmea. — Semelhante ao macho.

Tipos. — Holótipo macho; alótipo fêmea; parátipos seis machos e doze fêmeas. Registrados sob os ns. 7191 a 7204.

Localidade tipo. — Boracéia, VIII.1947 e XI.1947 (Rabello, Travassos F.^o e J. Lane col.).

Esta espécie é dedicada em homenagem ao nosso velho amigo o Dr. Afonso d'Escragnoille Taunay, que durante muitos anos foi diretor do Museu Paulista.

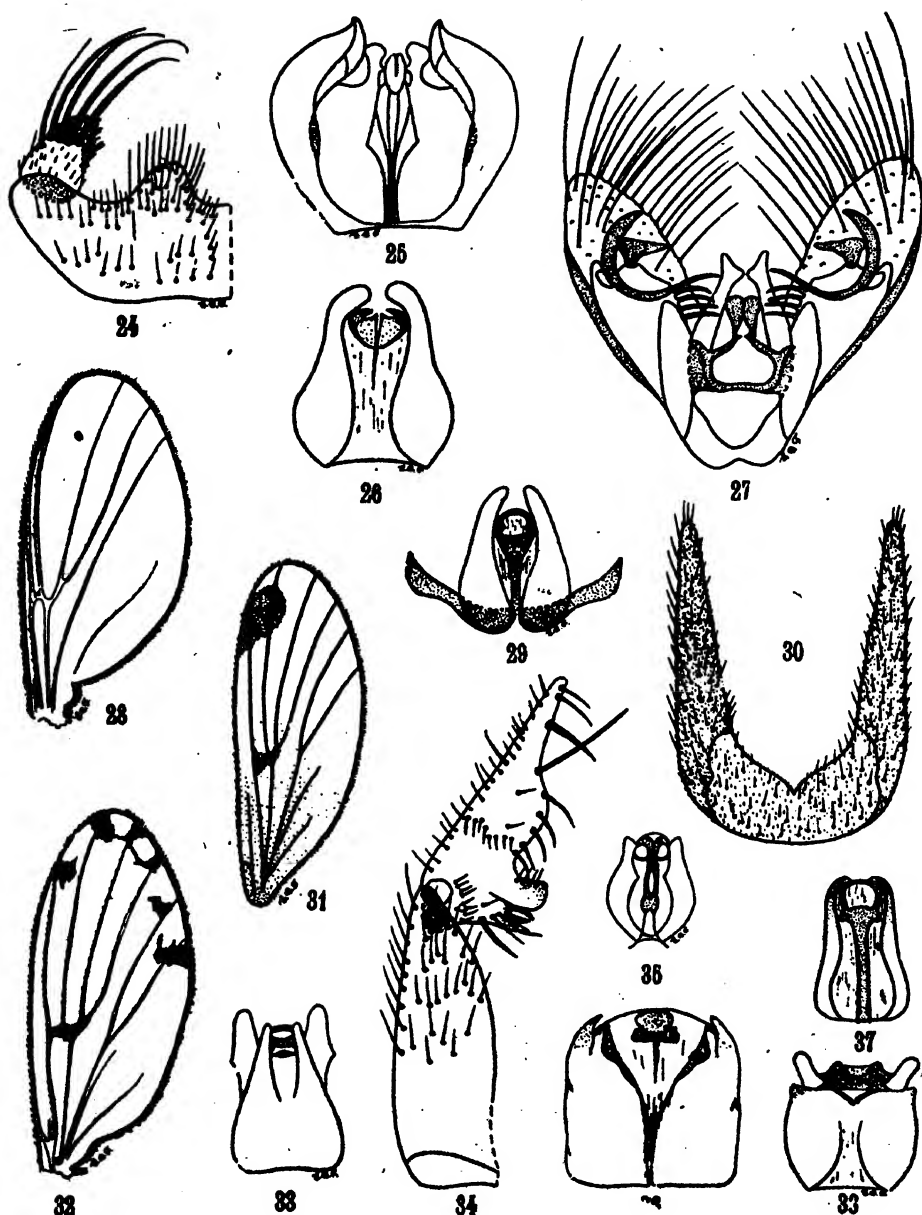


Fig. 24. *Delopsis maculipennis* End., basistilo e dististilo. — Fig. 25. *Platurocypta neotropicalls* Lane, 1947, mesosoma. — Fig. 26. *Eplecyta inornata* n. sp., mesosoma. — Fig. 27. *Mycetophila confusa* n. sp., genitalia. — Fig. 28. *Sceptonia bicolorata* n. sp., asa. — Fig. 29. *Mycetophila shannoni* n. sp., mesosoma. — Fig. 30. *Mycetophila confusa* n. sp., nono tergito. — Fig. 31. *Mycetophila splendida* n. sp., asa. — Fig. 32. *Mycetophila edwardsi* n. sp., asa. — Fig. 33. *Delopsis bosci* n. sp., mesosoma. — Fig. 34. *Mycetophila splendida* n. sp., basistilo e dististilo. — Fig. 35. *Zygomyia ornatepennis* n. sp., mesosoma. — Fig. 36. *Zygomyia bicolor* Edwards, 1934, mesosoma. — Fig. 37. *Mycetophila splendida* n. sp., mesosoma. — Fig. 38. *Delopsis maculipennis* End., mesosoma. (E. B. Ferraz del.)

Mycetophila mathesoni, n. sp.

Comprimento do corpo 2,6 mm; asa 2,4 mm.

Mach o. — Cabeça castanha, mais escura no meio, revestida de pilosidade amarelada, as cerdas oculares castanhas. Antena com uma e meia vezes o comprimento da coxa anterior; escapo e toro amarelados com cerdas castanhas; primeiro segmento flagelar amarelado na base, o restante bem como os demais segmentos enegrecidos. Palpo castanho.

Tórax: Mesonoto com tegumento castanho, mais escuro no meio, a raiz da asa com pequena mancha enegrecida; região pré-escutelar com duas grandes manchas enegrecidas e arredondadas e com seis longas cerdas transversalmente dispostas, revestimento formado por pilosidade amarelada e cerdas castanhas. Escutelo castanho-escuro, o centro e lados amarelados. Postnoto castanho-escuro no meio, amarelado nos lados. Pleuras castanhas salvo a esternopleura e o hipopleurito que são amarelados; pronoto com quatro cerdas na divisão anterior, a posterior com três cerdas longas além de outras menores; anepisternito com uma fileira de cinco cerdas longas e outras menores espalhadas pelo esclerito; pteropleurito com cinco cerdas; pleurotergito com um grupo de cerdas.

Pernas: Coxas amareladas, a anterior cerdosa na margem, a mediana com uma longa cerda e outras menores, a posterior com uma cerda distal. Trocânteres e fêmures amarelados. Tibias e tarsos gradualmente mais escuros. Tibia mediana com 5 cerdas dorsais das quais duas muito pequenas, 3 externas, 2 internas e 2 ventrais. Tibia posterior com 5 cerdas dorsais e 6 externas.

Asa de coloração amarelada e com mancha muito pequena ocupando os lados da nervura *r-m*. Pecíolo da *M* do comprimento de *r-m*. Segunda forquilha pouco aquém da primeira. Balancim amarelado.

Abdomen enegrecido em cima, os lados com extrema marcação lateral que forma grande mancha amarelada.

Genitália (fig. 8): Basistilo com os lobos fundidos, cerca de um terço mais longos que largos e esparsamente cerdosos. Dististilo com dois terços do comprimento do basistilo e com grande incisão próxima à base e que deixa livre longa protuberância digitiforme quase glabra e adelgada para o ápice; porção distal capitiforme e esparsamente cerdosa. Mesosoma mais largo que longo, com dois terços do comprimento do basistilo, mediana e superiormente com uma estrutura sub-quadr-

gular, entalhada no meio e possuindo asas laterais. Nono tergito (fig. 43) com dois terços do comprimento do basistilo, subtriangular e esparsamente cerdoso.

Fêmea. — Semelhante ao macho.

Tipos. — Holótipo macho; alótipo fêmea; parátipo uma fêmea.

Localidade tipo. — Boracéia, VIII.1947 e XI.1947 (Rabello, Travassos F.º e J. Lane col.).

O nome desta espécie é dado em homenagem ao nosso amigo, o professor Dr. Robert Matheson da Universidade de Cornell, EE.UU.

Mycetophila winnertzi, n. sp.

Comprimento do corpo 3 mm; asa 2,8 mm.

Mach o. — Cabeça castanha, revestida de pilosidade amarelada, as cerdas castanhas. Antena com quase duas vezes o comprimento da coxa anterior; escapo e toro amarelados, com esparsas cerdas; flagelo com a base do primeiro segmento amarelada, o restante bem como os demais segmentos enegrecidos. Palpo castanho.

Tórax: Mesonoto castanho, com mancha cuneiforme apagada e anterior, o restante dessa cor salvo nos lados e anteriormente onde é amarelado; região pré-escutelar com duas manchas enegrecidas e quatro cerdas transversalmente dispostas; revestimento formado por pilosidade amarelada e cerdas enegrecidas. Escutelo amarelado, basalmente enegrecido. Postnoto castanho no meio, as margens amareladas. Pleuras castanhas, a esternopleura amarelada; pronoto com três cerdas na divisão anterior, a posterior com seis ou sete cerdas; anepisternito com quatro cerdas além de outras menores; pteropleurito com uma fileira de quatro cerdas; pleurotêrgito com algumas em mancha.

Pernas: Coxas amareladas, a posterior um pouco escurecida no ápice, a anterior cerdosa, a mediana com uma fileira e a posterior com uma cerda na ponta. Trocânteres, fêmures e tíbias amarelados. Tarsos gradualmente escurecidos para o ápice. Tíbia mediana com 5 cerdas dorsais, 3 externas, 3 internas e 4 ventrais. Tíbia posterior com 5 cerdas dorsais, 7 externas e cerca de 15 dorso-internas.

Asa com pequena mancha invadindo *r-m* e a forquilha de *M*. *M* com o pecíolo do comprimento de *r-m*. Segunda forquilha da asa bem além da primeira. Balancim amarelado.

Abdomen com os tergitos enegrecidos salvo extensas faixas apicais amareladas de II em diante.

Genitália (fig. 12): Basistilo com os lobos fundidos, pouco mais longos que largos, adelgaçados no ápice e cerdosos. Dististilo sub-dividido em dois lobos, um grande, disforme, o outro pequeno, digitiforme (vide a ilustração). Mesosoma sub-quadrangular, mais longo que largo, o ápice com três protuberâncias das quais a mediana além de ser a maior é romba e possui dois pequenos apêndices laterais. Nono tergito (fig. 44) sub-triangular, a ponta alongada, cerdoso.

Fêmea. — Semelhante ao macho.

Tipos. — Holótipo macho; alótipo fêmea; parátipo uma fêmea. Registrado sob os ns. 7208 a 7210.

Localidade tipo. — Boracéia, VIII.1947 (Rabello, Travassos F.º e J. Lane col.); XI.1947 (Rabello e Travassos F.º col.).

Esta espécie é dedicada a J. Winnertz, um dos primeiros a pôr em ordem a sistemática deste grupo.

Mycetophila shannoni, n. sp.

Comprimento do corpo 3,2 mm; asa 3 mm.

Macho. — Cabeça castanha, um pouco mais escura no meio; revestida de pilosidade amarelada, as cerdas castanhas. Antena aproximadamente uma e meia vezes o comprimento da coxa anterior; escapo, toro e primeiros cinco ou seis segmentos flagelares amarelados, o restante enegrecido. Palpo castanho.

Tórax: Mesonoto castanho no meio, para os lados amarelado; região pré-escutelar com duas manchas enegrecidas e quatro longas cerdas transversalmente dispostas; revestimento formado por pilosidade amarelada e cerdosidade enegrecida. Escutelo amarelado, os lados mais escuros. Postnoto castanho-claro no meio, os lados amarelados. Pleuras amareladas, o anepisternito e pleurotergito mais escuros; pronoto anterior com quatro cerdas longas além de outras menores; pteropleurito com uma fileira de quatro cerdas; pleurotergito com pequena mancha.

Pernas: Coxas amareladas, os ápices com pequenos pontos escuros, margem da anterior cerdosa, a mediana com um grupo e a posterior com uma cerda distal. Trocânteres amarelados. Tíbias e tarsos amarelados. Tibia mediana com 5 cerdas dorsais, 3 externas, 3 ventrais e 4 internas, sendo duas menores. Tibia posterior com 5 cerdas dorsais e 7 externas.

Asa de tonalidade amarelada com pequena mancha media

na que ocupa *r-m* e a forquilha de *M*. Pecíolo de *M* um pouco mais longo que *r-m*. Segunda forquilha da asa pouco além da primeira. Balancim amarelado.

Abdomen enegrecido, os tergitos com estreitas faixas claras no ápice.

Genitália (fig. 7): Basistilo com os lobos fundidos, uma e meia vezes mais longos que largos; espiculosos e esparsamente cerdosos na porção superior. Dististilo sub-dividido em dois lobos: o primeiro grande e com uma protuberância superior alongada e ornada de cerdas diferenciadas sobre base larga e cerdosa; o segundo lobo digitiforme, cerdoso e terminado por uma cerda curta, mais esclerotizada, grossa e romba. Mesosoma (fig. 29) em formato de pera, o ápice em dois filamentos laterais, existindo no meio e abaixo dos filamentos uma estrutura arredondada. Nono tergito (fig. 45) com dois terços do comprimento do basistilo, sub-triangular, espiculoso e cerdoso.

Fêmea. — Semelhante ao macho.

Tipos. — Holótipo macho; alótipo fêmea; parátips, dois machos e duas fêmeas. Registrados sob os ns. 7211 a 7214.

Localidade tipo. — Boracéia, VIII.1947; XI.1947 (Rabello, Travassos F.^o e J. Lane col.).

O nome desta espécie é dado em homenagem póstuma ao Dr. Raymon C. Shannon da International Health Division of the Rockefeller Foundation.

Mycetophila theresae Edwards, 1932.

1932, *Mycetophila theresae* Edwards, Rev. Ent., 2: 148.

Temos uma série de vinte e dois exemplares capturados em Boracéia em VIII.1947 e XI.1947. O tom geral de coloração do mesonoto vai desde o castanho-escuro até o castanho-claro. Alguns raros espécimens mostram um desenho apagado, mas, em todos eles, as manchas pré-escutelaes são sempre distintas. Em um ou outro exemplar, a mancha sobre a raiz da asa desaparece por completo e, na nossa série, tal marcação vai desde duas manchas grandes e nítidas até completa ausência das mesmas. O abdômen mostra em alguns exemplares manchas nítidas e grandes, mas tal marcação pode gradualmente desaparecer em outros espécimens até ser representada apenas por pequenas manchas que, da porção superior, vão para os lados. A mancha da coxa mediana pode faltar, sendo raramente ausente a encontrada na coxa posterior. A antena de todos os nossos exem-

plares possui o terceiro segmento com anel basal enegrecido. Escolhemos um dos machos da série acima para o alótipo desta espécie.

Aproveitamos esta ocasião para agradecer ao Dr. Paul Freeman do British Museum (Natural History) a gentileza de comparar os nossos exemplares com o tipo.

Mach o. — Com os característicos e variação da fêmea. Genitália (fig. 13): Basistilo com os lobos sub-quadrangulares, quase fundidos, duas vezes mais longos que largos, espiculoso e homogêneamente revestidos de cerdosidade. Dististilo em uma única peça delgada e do comprimento do basistilo; acotovelado na base donde saem protuberâncias, a porção engrossada munida de algumas cerdas diferenciadas além de muitas outras dispostas em mancha, o restante com uma fileira marginal de cerdas diferenciadas. Mesosoma pequeno, quase arredondado, com duas saliências látero-superiores grossas e terminadas em um bico adunco; porção mediana com estruturas complexas e tendo na ponta um processo arredondado. Nono tergito (fig. 48) com dois terços do comprimento do basistilo, alongado, com quatro longas cerdas diferenciadas além de curta cerdosidade e espiculosidade.

Tipos. — O alótipo está registrado sob o n. 7215.

Mycetophila freemani, n. sp.

Comprimento do corpo 3,8 mm; asa 3,6 mm.

Mach o. — Cabeça castanho-escura revestida de discreta pilosidade castanha, as cerdas marginais longas e dessa cor. Antena com uma e dois terços vezes o comprimento da coxa anterior; escapo e toro amarelados, cerdosos dorsalmente, primeiro segmento flagelar enegrecido na base, amarelado para o ápice, os demais segmentos passando gradualmente para o castanho-escuro.

Tórax: Mesonoto castanho com indícios muito apagados de desenho mais escuro, os lados mais claros; região pré-escutelar com duas manchas enegrecidas e outra mancha também enegrecida sobre a raiz da asa; revestimento formado por curta pilosidade amarelada, além das cerdas que são castanho-escuras. Escutelo castanho em continuação às manchas, a porção mediana amarelada. Postnoto com desenho castanho-claro, o restante amarelado. Pleuras com os escleritos castanho-claros, porções do anepisternito e pleurotergito mais escuras; pronoto anterior com

quatro cerdas longas e outras mais curtas, o posterior com três cerdas longas e outras menores; anepisternito com cinco cerdas longas além da pilosidade que reveste o restante do esclerito; pteropleurito com cinco cerdas em fileira; pleurotergito com cinco ou seis cerdas.

Pernas: Coxas amareladas, a posterior com extensa mancha enegrecida na porção interna-posterior. Trocânteres amarelados bem como os fêmures. Tibias e tarsos mais escuros. Tibia mediana com 5 cerdas dorsais, 3 externas e 7 internas. Tibia posterior com 4 cerdas dorsais e 7 externas.

Asa hialina salvo a mancha mediana que é variável e um tanto diluída, o pecíolo de *M* sensivelmente menor que *r-m*. Segunda forquilha um pouco aquém da primeira. Balancim amarelado.

Abdomen com manchas basais amareladas, a porção distal enegrecida.

Genitália (ifg. 14): Basistilo cerca de duas vezes a maior largura, homogêneamente cerdoso. Dististilo como em *M. theresae* Edwards, 1932, exceto as cerdas diferenciadas do cotovelo que são mais largas, um tanto foliáceas e a mancha nessa região que é substituída por cerdosidade esparsa; as cerdas da protuberância são aparentemente mais longas e delgadas existindo uma cerda do outro lado. O mesosoma é um pouco maior.

Fêmea. — Semelhante ao macho.

Tipos. — Holótipo macho; alótipo fêmea; parátipos seis machos e cinco fêmeas. Registrados sob os números 7227 a 7234.

Localidade tipo. — Boracéia, VIII.1947 e XI.1947 (Rabello, Travassos F.º e J. Lane col.); dois parátipos de Campos do Jordão, XII.1945 e do Estado do Rio de Janeiro, Angra dos Reis, XI.1945 (J. Lane col.).

O nome desta espécie é dado em homenagem ao Dr. Paul Freeman do British Museum (Natural History), que muito nos auxiliou na identificação das espécies descritas por Edwards. Notamos que a espécie acima sofre a mesma variação que *M. theresae* Edwards, 1932.

Mycetophila boracensis, n. sp.

Comprimento do corpo 4,5 mm; asa 4 mm.

Mach o. — Cabeça com tegumento castanho, revestida de pilosidade amarelada, as cerdas castanhas. Antena com duas vezes o comprimento da coxa anterior; escapo, toro e o primeiro

segmento flagelar avermelhados, o restante enegrecido. Palpo amarelado.

Tórax: Mesonoto castanho, um pouco mais escuro medianamente, revestido de pilosidade amarelada e cerdas castanhas; região pré-escutelar com quatro cerdas transversalmente dispostas. Escutelo castanho-escuro salvo faixa longitudinal amarelada e muito estreita. Pleuras castanhas salvo o esternopleurito que é amarelado; pronoto anterior com cinco cerdas dispostas em fileiras além de três menores, o posterior com uma cerca longa e muitas outras curtas; anepisternito com oito cerdas e pilosidade; pteropleura com uma fileira de cinco cerdas; pleurotergito com um tufo de cerdas.

Pernas: Coxas amareladas, a posterior enegrecida na margem externa posterior. Trocânteres e fêmures amarelados. Tíbias e tarsos mais escuros. Tíbia mediana com 4 cerdas dorsais, 4 externas, 7 internas curtas. Tíbia posterior com 4 cerdas dorsais, 7 externas e 9 internas curtas.

Asa com grande mancha que, desde *r-m*, vai até o pecíolo de *M*. Segunda forquilha pouco aquém da primeira. Balancim amarelado.

Abdomen enegrecido exceto o segmento IV que é extensamente amarelado dorso-ventralmente.

Genitália (fig. 15): De coloração castanha. Basistilo com os lobos fundidos e pouco mais longos que largos, espiculosos e esparsamente cerdosos. Dististilo mais longo que o basistilo, em uma só peça; largo na base onde forma um cotovelo; adelgado para o ápice onde se encontram cerdas diferenciadas. Mesosoma sub-quadrangular, com dois filamentos laterais de ápice arredondado; no meio e abaixo dos filamentos uma estrutura de formato quase circular. Nono tergito (fig. 49) com dois terços do comprimento do basistilo, sub-triangular, revestido de espículas e cerdas.

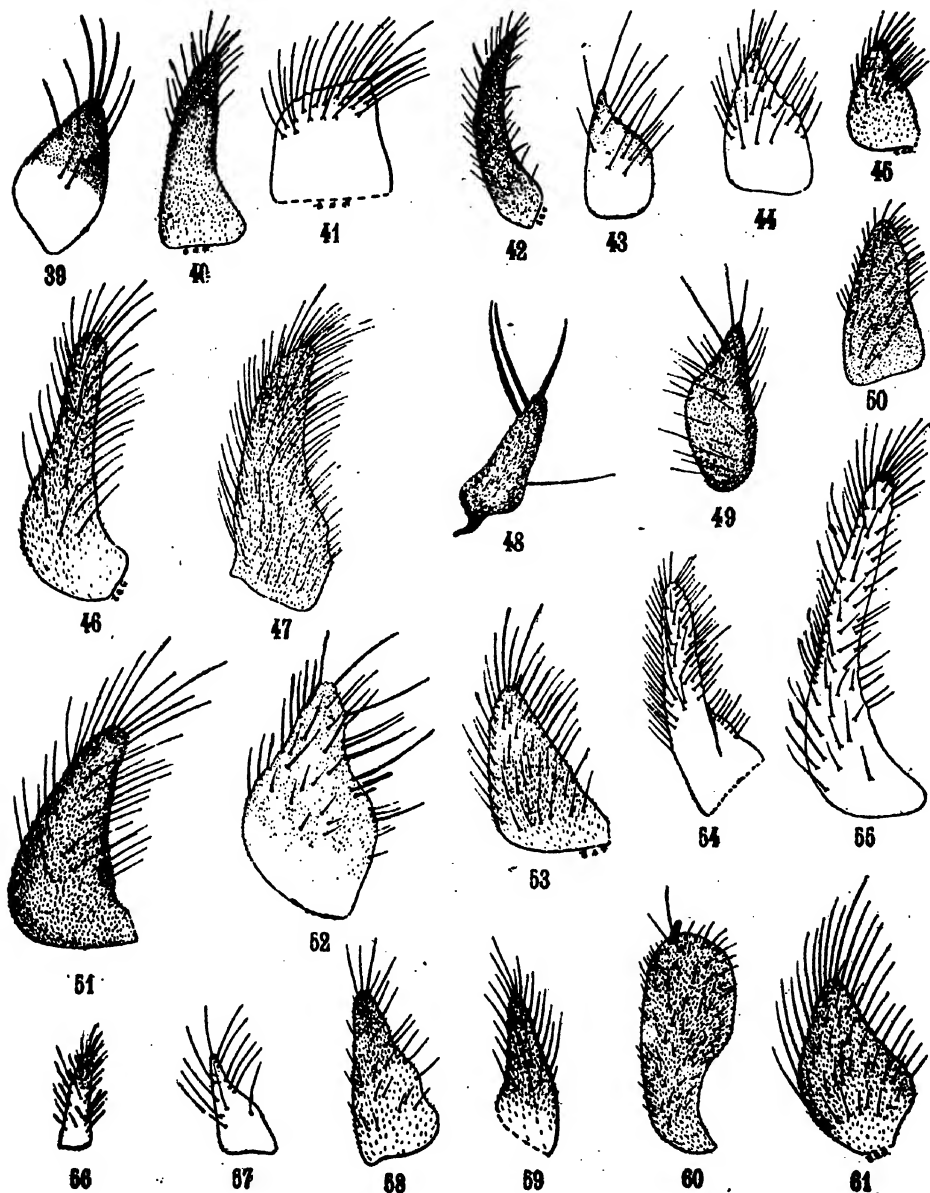
Tipos. — Holótipo macho; registrado sob o n. 7235. Parátipo um macho.

Proveniência do material estudado. — Boracéia, VIII.1947 e XI.1947 (Rabello, Travassos F.^o e J. Lane col.).

Mycetophila borgmeieri Edwards, 1932.

1932, *Mycetophila borgmeieri* Edwards, Rev. Ent., 2: 149.

Os nossos exemplares foram comparados com o tipo. Temos uma grande série de 86 espécimens provenientes das se-



Nono tergito de:
 Fig. 39. *Epicypta paulistensis* n. sp. — Fig. 40. *Platurocypta neotropica* Lane, 1947. — Fig. 41. *Zygomyia bicolor* Edwards, 1934. — Fig. 42. *Zygomyia ornati-pennis* n. sp. — Fig. 43. *Mycetophila mathesoni* n. sp. — Fig. 44. *Mycetophila winnertzi* n. sp. — Fig. 45. *Mycetophila shannoni* n. sp. — Fig. 46. *Epicypta inornata* n. sp. — Fig. 47. *Mycetophila taunayi* n. sp. — Fig. 48. *Mycetophila theresae* Edw. — Fig. 49. *Mycetophila boracensis* n. sp. — Fig. 50. *Mycetophila borgmeieri* n. sp. — Fig. 53. *Delopsis boschii* n. sp. — Fig. 54. *Delopsis travassosi* n. sp. — Fig. 55. *Delopsis lunata* n. sp. — Fig. 56. *Altodia complexa* n. sp. — Fig. 57. *Zygomyia modesta* n. sp. — Fig. 58. *Delopsis rabeltoi* n. sp. — Fig. 59. *Mycetophila splendida* n. sp. — Fig. 60. *Delopsis pluripunctata* n. sp. — Fig. 61. *Delopsis maculipennis* End. (E. B. Ferraz del.)

guintes localidades do Estado de S. Paulo: Campos do Jordão, XII.1945; Cantareira, VIII.1945; Ferraz de Vasconcelos, VIII.1946 (J. Lane col.); Boracéia, VIII e XI.1947 (Rabello, Travassos F.^o e J. Lane col.).

Abaixo descrevemos e ilustramos a genitália do macho.

Genitália (fig. 22): Basistilo pouco mais longo que largo, densamente cerdoso na metade distal. Dististilo quase do comprimento do basistilo, sub-dividido em dois lobos semelhantes, um deles pouco menor que o outro, ambos sub-triangulares e alongados, densamente revestidos de cerdas. Mesosoma com duas grandes colunas laterais, a porção mediana em uma estrutura arredondada e com diversos filamentos voltados para cima. Nono tergito (fig. 50) uma e meia vezes o comprimento do basistilo sub-triangular e homogêneamente revestido de cerdosidade.

Mycetophila iheringi, n. sp.

Comprimento do corpo 3,5 mm; asa 3,2 mm.

Fêmea. — Cabeça amarelada com leve tonalidade castanha, revestida de cerdas e pilosidade castanha. Antena com quase duas vezes o comprimento da coxa anterior; escape duas e meia vezes o comprimento do toro, aquele da cor da cabeça, este amarelado; flagelo com os segmentos basais extensamente amarelados na base, enegrecidos no ápice bem como os demais segmentos da antena. Palpo amarelado.

Tórax: Mesonoto castanho-claro com um desenho muito apagado no centro, mais claro para os lados, existindo uma mancha escura sobre a raiz da asa e outra no meio da região pré-escutelar. Escutelo com estria longitudinal mediana castanha, o restante amarelado. Postnoto com estria longitudinal mediana castanha, o restante amarelado; pleuras amareladas; pronoto anterior com quatro cerdas e duas menores, o posterior com cinco ou seis cerdas longas; anepisternito com seis cerdas mais longas além de outras menores; pteropleura com três cerdas; pleurotergito com algumas cerdas.

Pernas: Coxas amareladas. Trocânteres amarelados, os fêmures dessa cor, os posteriores com pequeno ponto mais escuro no ápice. Tíbias e tarsos mais escuros. Tibia mediana com 5 cerdas dorsais, 3 externas e 6 internas. Tibia posterior com 4 cerdas dorsais e 7 externas.

Asa hialina. Pecíolo de *M* mais curto que *r-m*. Segunda forquilha da asa pouco além da primeira. Balancim amarelado.

Abdomen com os tergitos amarelados salvo o I que é enegrecido, II a V com largas faixas basais também enegrecidas e VI a VII que são enegrecidos.

Macho. — Desconhecido.

Tipos. — Holótipo fêmea; parátipos quatro fêmeas. Registrados sob os ns. 7236 a 7239.

Localidade tipo. — Boracéia, VIII.1947 e XI.1947 (Rabello, Travassos F.º e J. Lane col.).

O nome desta espécie é dado em homenagem ao eminente zoólogo Dr. Herman Von Ihering, que durante muitos anos foi diretor do Museu Paulista.

Mycetophila confusa, n. sp.

Comprimento do corpo 2,2 mm a 2,5 mm; asa 2 a 2,2 mm.

Macho. — Cabeça castanho-escura no meio, mais clara para os lados, revestida de pilosidade dourada. Antena com quase duas vezes o comprimento da coxa anterior, escapo e toro amarelados, bem como a base do primeiro segmento flagelar, o restante e os demais segmentos flagelares enegrecidos. Palpo amarelado.

Tórax: Mesonoto com uma mancha mediana cuneiforme, castanho-enegrecida salvo no centro onde é mais clara, ao lado duas manchas enegrecidas que, no meio, são estreitas; entre as manchas o tegumento é amarelado, no restante é esbranquiçado; revestimento formado por pilosidade dourada e cerdosidade castanha e esparsa; região pré-escutelar com quatro cerdas transversalmente dispostas. Escutelo amarelado salvo estria longitudinal enegrecida que, na base, se dilui. Postnoto amarelado. Pleuras amareladas salvo o pronoto, propleura e mancha arredondada no anepisternito que são castanho-escuros; pronoto anterior com três longas cerdas, o posterior com cerdosidade muito curta; anepisternito com cinco cerdas além da pilosidade; pteropleurito com três cerdas em fileira; pleurotergito com algumas cerdas.

Pernas: Coxas amareladas salvo a posterior que é castanho-escura na base. Trocânteres e fêmures amarelados. Tíbias e tarsos mais escuros. Tíbia mediana com 6 cerdas dorsais, 3 externas e 2 ventrais. Tíbia posterior com 5 cerdas dorsais e 7 externas.

Asa hialina. Pecíolo de *M* um pouco mais longo que *r-m*. Segunda forquilha da asa bem além da primeira. Balancim amarelado.

Abdomen enegrecido dorsalmente, ventralmente com extensa marcação amarelada.

Genitália (fig. 27): Basistilo um tanto ovalado, mais largo que longo, glabro. Dististilo sub-dividido em dois lobos: o primeiro curto, com uma fileira de cerdas na base, o ápice munido de três grandes dentes sendo que dois são largos e um é alongado, todos fortemente esclerotizados; segundo lobo grande, arredondado, fortemente revestido de longa pilosidade. Mesosoma em formato de pera, adelgado para o ápice que termina em dois filamentos longos e arredondados; no meio uma estrutura alongada, sub-dividida, cada subdivisão terminando em um forte e curto espinho. Nono tergito (fig. 30) com uma e meia vezes o comprimento do basistilo mais o dististilo, alongado, adelgado e esparsamente revestido de pilosidade.

Fêmea. — Semelhante ao macho.

Tipos. — Holótipo macho; alótipo fêmea; parátipos três machos e três fêmeas. Registrados sob os ns. 7240 a 7245.

Localidade tipo. — Holótipo e alótipo Campos do Jordão, XII.1945 (J. Lane col.); parátipos de Boracéia, VIII.1947 e XI.1947 (Rabello, Travassos F.º e J. Lane col.); um parátipo do Estado de Goiás, Corumbá, XI.1945 (M. P. Barretto col.).

Gênero *Delopsis* Skuse, 1890.

Frequentemente é impossível se observar o característico das cerdas na porção inferior do segundo segmento abdominal. O tamanho relativo das pleuras, por outro lado, parece oferecer caracteres muito mais fixos para a separação das espécies deste gênero. Incluímos uma chave para a mor parte delas.

Chave.

- | | |
|--|---------------------------------------|
| 1. Asa sem mancha no meio | 3. |
| — Asa manchada | 2. |
| 2. Asa com apenas a mancha mediana | 18. |
| — Asa escura, mais clara apenas no meio e em cima | <i>rufa</i> n. sp. |
| 3. Haltere amarelado ou então com a haste de coloração castanho-clara | 5. |
| — Haltere com a haste esbranquiçada e o capítulo enegrecido | 4. |
| 4. Mesonoto brilhante, o tegumento pontilhado, a porção anterior amarelada, os dois terços posteriores enegrecidos | <i>nigrohalterata</i> Enderlein, 1911 |
| — Mesonoto sem brilho ou pontuação, com desenho escuro sobre fundo amarelado | <i>ornata</i> n. sp. |
| — Mesonoto sem brilho e sem desenho, castanho | <i>boscai</i> n. sp. |
| 5. Apice do fêmur posterior enegrecido ou então as articulações fêmuro-tibiais posteriores enegrecidas | 6. |

- Ápice do fêmur posterior e base da tíbia correspondente não enegrecidos 11.
- 6. Mesonoto amarelo-avermelhado-brilhante 7.
- Mesonoto de outra cor 8.
- 7. Mancha enegrecida na região pré-escutelar mais larga que o escutelo *brasiliensis* Enderlein, 1911
- Tal mancha bem mais estreita que a largura do escutelo. *goianensis* Lane, 1946
- 8. Mesonoto castanho ou amarelado 9.
- Mesonoto enegrecido-brilhante na mor parte *planiventris* Enderlein, 1911
- 9. Mesonoto sem pontos enegrecidos nos lados. 10.
- Mesonoto com dois pontos ou manchas, em formato de meia lua, em cada lado *lunatus* n. sp.
- 10. Escutelo totalmente amarelado *travassosi* n. sp.
- Escutelo enegrecido no meio, amarelado para os lados. *miltoni* n. sp.
- 11. Mesonoto com, pelo menos, a mancha de região pré-escutelar. . . 12.
- Mesonoto sem manchas e de coloração amarelo-clara; segunda forquilha da asa bem além da primeira. . . *ornatidorsum* Enderlein, 1911
- Mesonoto sem manchas e de coloração amarelo-clara; segunda forquilha da asa aquém da primeira. *capitata* Enderlein, 1911
- 12. Mesonoto amarelado 14.
- Mesonoto castanho, com duas estrias que convergem na região pré-escutelar 13.
- 13. Abdomen com os tergitos dorsalmente enegrecidos, o sexto mormente amarelado; balancim com a haste amarelada e o capítulo castanho; segunda forquilha da asa aquém da primeira. *tristis* n. sp.
- Abdomen com marcação mais clara nos tergitos IV a VII; balancim com apenas péquena mancha castanha, o restante amarelado; segunda forquilha da asa distintamente além da primeira. *lugubris* n. sp.
- 14. Com outras manchas além da encontrada na região pré-escutelar. . 15.
- Apenas com a mancha da região pré-escutelar, o restante amarelo-claro *punctulata* Lane, 1947
- 15. Mesonoto com uma estria enegrecida no meio. 16.
- Mesonoto sem tal estria, porém ornado de um desenho pouco distinto; balancim com a haste amarelada e o capítulo castanho; segunda forquilha da asa bem além da primeira. . *barrettoi* Lane, 1947
- 16. A estria mediana não atinge nem a margem anterior nem a mancha pré-escutelar 17.
- A estria mediana vai desde a região anterior até atingir a mancha pré-escutelar; segunda forquilha da asa pouco além da primeira. . . *humboldtii* n. sp.
- 17. Cada lado do mesonoto com três manchas enegrecidas; meio do escutelo enegrecido; segunda forquilha da asa bem além da primeira. . *pluripunctata* n. sp.
- Lados do mesonoto sem tais manchas; escutelo amarelado; segunda forquilha da asa bem aquém da primeira. *rabelloi* n. sp.
- 18. A mancha da asa nunca invadindo a célula costal. 19
- Tal mancha invadindo a célula costal; balancim com a haste clara e o capítulo enegrecido *wygodzinskyi* Lane, 1947
- 19. Fêmur posterior com o ápice enegrecido. 21.
- Fêmur posterior totalmente amarelado 20.
- 20. Mesonoto e escutelo com a mesma cor. *macula* Enderlein, 1911

- Escutelo mais escuro no meio e de coloração diferente da do mesonoto *johannseni* Lane, 1946
- 21. Mesonoto amarelo ou castanho-brilhante anteriormente, atrás com duas manchas que quase ocupam a metade posterior; escutelo enegrecido 22.
- Mesonoto amarelo-brilhante e apenas com pequena mancha pré-escutelar; escutelo castanho no meio e amarelado para os lados *maculipennis* Enderlein, 1911
- 22. Antena com anéis; porção anterior do mesonoto castanha (?) *ancyloformans* Knab e Zwaluwenburg, 1918
- Antena sem anéis; porção anterior do mesonoto amarelada *brasiliiana* Edwards, 1932

Delopsis rufa, n. sp.

Comprimento do corpo 4 mm; asa 3,6 mm.

M a c h o . — Cabeça castanho-avermelhada, revestida de pilosidade castanha. Antena com uma e um terço vezes o comprimento da coxa anterior; escapo e toro castanho-avermelhados, o flagelo castanho. Palpo avermelhado.

Tórax: Mesonoto castanho-avermelhado, revestido de pilosidade e cerdas castanhas, a região pré-escutelar com duas fileiras transversais formadas por seis cerdas. Escutelo castanho. Postnoto castanho-avermelhado. Pleuras com o esternopleurito mais claro, o restante castanho-avermelhado; anepiisternito com numerosas cerdas na porção posterior e pilosidade na anterior; pteropleurito com três cerdas; pleurotergito com um tufo superior.

Pernas castanho-avermelhadas, os tarsos escuros. Coxas um pouco mais escuras no ápice. Tibia mediana com 5 cerdas dorsais, 5 externas, 3 ventrais e 4 internas. Tibia posterior com 5 dorsais, 8 externas e 3 sub-dorsais.

Asa escura, mais escura ainda numa mancha mediana, existindo no meio e anteriormente uma porção quadrangular hialina que alcança a nervura *M*. Segunda forquilha sensivelmente além da primeira. Balancim avermelhado.

Abdomen castanho-enegrecido-brilhante salvo na base de I, base e lados de II, ápice de III e faixas apicais de IV e V que são amarelados. Esternitos amarelados.

Genitália pequena e retraída. Basistilo com os lobos compactos, arredondados, quase tão longos quanto largos, cerdosos, existindo na margem interna distal um prolongamento munido de cerdas diferenciadas. Dististilo com dois terços do comprimento do basistilo, grossa e fortemente revestido de cerdas longas, o ápice modificado em um bico inerte e adunco. Mesosoma ovalado, os filamentos laterais à altura da estrutura mediana.

Fêmea. — Semelhante ao macho.

Tipos. — Holótipo macho; alótipo fêmea; parátipos quatro machos e três fêmeas. Registrados sob os ns. 7429 a 7434.

Localidade tipo. — Estado de Santa Catarina, Nova Teutônia (Fritz Plaumann col.).

Delopsis ornata, n. sp.

Comprimento do corpo 2,2 mm; asa 2 mm.

Macho. — Cabeça castanho-escura, revestida de pilosidade amarelada. Antena uma e dois terços vezes o comprimento da coxa anterior; escapo e toro castanhos bem como o primeiro segmento flagelar, o restante bem como os demais segmentos enegrecidos. Palpo amarelado.

Tórax: Mesonoto amarelado no centro, os lados esbranquiçados, existindo um desenho formado por uma estria mediana e linhas laterais irregulares e sinuosas de coloração castanho-enegrecida; revestimento formado por pilosidade esbranquiçada e cerdas castanho-escuras. Escutelo castanho, as margens laterais estreitamente amareladas. Postnoto castanho no meio, mais claro nos lados. Pleuras castanhas salvo a esternopleura e pteropleura que são amareladas; pronoto anterior com duas cerdas, o posterior com pequenas cerdas curtas; anepisternito com quatro ou cinco cerdas na margem posterior além de outras menores; pteropleurito com três cerdas; pleurotergito com algumas cerdas.

Pernas: Coxas amareladas, trocânteres um pouco mais escuros. Fêmures amarelados. Tíbias e tarsos mais escuros. Tíbia mediana com 5 cerdas dorsais, 3 externas e 2 ventrais. Tíbia posterior com 6 cerdas dorsais e 7 externas.

Asa hialina, um pouco mais escura na região costal. Pecíolo de *M* pouco mais longo que *r-m*. Segunda forquilha sensivelmente aquém da primeira. Balancim com a haste amarelada e o capítulo enegrecido.

Abdomen com os tergitos castanho-escuros, ventralmente amarelado.

Genitália (fig. 16): Basistilo adelgado, cerca de duas vezes mais longo que largo, encurvado, espiculoso, esparsamente revestido de cerdosidade distinta e com duas grandes cerdas na base. Dististilo com duas divisões; a primeira quase tão longa quanto o basistilo, revestida de cerdas e com quatro cerdas apicais diferenciadas longas na ponta e duas na base; o segundo

lobo pequeno, sub-triangular e cerdoso na margem. Mesosoma arredondado, pouco mais longo que largo e com duas saliências disformes laterais superiores. Nono tergito (fig. 51) pouco mais curto que a soma do basistilo mais o dististilo, sub-triangular espiculoso e cerdoso.

Fêmea. — Desconhecida.

Tipo. — Holótipo macho. Registrado sob o n. 7246.

Localidade tipo. — Boracéia, XI.1947 (Rabello e Travassos F.^o col.).

Delopsis boscii, n. sp.

Comprimento do corpo 3,2 mm; asa 3 mm.

Mach o. — Cabeça castanha, enegrecida medianamente, revestida de pilosidade amarelada, as cerdas castanhas. Antena quase uma e meia vezes o comprimento da coxa anterior; escapo, toro e base do primeiro segmento flagelar amarelados, o restante bem como os demais segmentos, gradualmente mais escuros para o ápice. Palpo amarelado.

Tórax: Mesonoto com larga mancha central cuneiforme castanha e duas sub-laterais dessa cor, o restante mais claro salvo outra grande mancha enegrecida na região pré-escutelar e ainda outra pequena mancha dessa cor sobre a raiz da asa; região pré-escutelar com seis cerdas horizontalmente dispostas; revestimento formado por pilosidade amarelada. Escutelo enegrecido no meio, esbranquiçado nos lados. Postnoto castanho no meio e amarelado nos lados. Pleuras castanhas salvo o esternopleurito, a porção inferior do pleurotergito e a hipopleura que são amarelados; pronoto anterior com quatro cerdas longas, o posterior com três além de outras menores.

Pernas: Coxas amareladas, o ápice um pouco mais escuro; trocânteres escuros. Fêmures com os ápices enegrecidos, o posterior com todo o sexto distal dessa cor. Tíbias e tarsos gradualmente mais escuros. Tibia mediana com 8 cerdas dorsais, em duas fileiras, 3 externas, 2 ventrais e 2 pequenas internas. Tibia posterior com 12 ou 13 cerdas dorsais em duas fileiras e 3 externas.

Asa levemente escurecida, sem manchas. Pecíolo de *M* do tamanho de *r-m*. Segunda forquilha pouco aquém da primeira. Balancim com a haste esbranquiçada e o capítulo enegrecido.

Abdomen enegrecido salvo os segmentos III a VII que possuem estreitas e discretas faixas apicais.

Genitália (fig. 17): Basistilo com os lobos formando um anel que possui uma protuberância no meio e que é ornada de longas cerdas. Dististilo mais longo que o basistilo, cerdoso, o ápice com cinco ou seis cerdas diferenciadas. Mesosoma (fig. 33) quase tão largo quanto longo, com protuberâncias látero-superiores e estruturas diferenciadas no meio. Nono tergito (fig. 53) com o comprimento do basistilo mais o dististilo, sub-triangular e cerdoso.

Fêmea. — Desconhecida.

Tipo. — Holótipo macho. Registrado sob o n. 7247.

Localidade tipo. — Boracéia, VIII.1947 (Rabello, Travassos F.º e J. Lane col.).

Delopsis lunata, n. sp.

Comprimento do corpo 3 a 3,2 mm; asa 2,8 a 3 mm.

M a c h o. — Cabeça castanho-enegrecida no meio, gradualmente amarelada para os lados, revestida de pilosidade dourada. Antena com quase duas vezes o comprimento da coxa anterior; escapo e toro amarelados bem como a base do primeiro e de alguns dos segmentos basais, o restante enegrecido bem como os segmentos do ápice. Palpo castanho-escuro.

Tórax: Mesonoto amarelado, esbranquiçado para os lados salvo o seguinte desenho: uma mancha cuneiforme que, posteriormente, se liga à estreita faixa que, por sua vez, se alarga na região pré-escutelar e se liga a uma grande mancha pré-escutelar quadrangular; em cada lado duas manchas em formato de meia lua, e que podem se unir ou então subdividir-se, mas geralmente permanecem distintas; revestimento formado por pilosidade dourada e curta cerdosidade castanho-escura; seis cerdas pré-escutelares transversalmente dispostas, as internas pequenas. Escutelo enegrecido no meio, amarelado nos lados. Postnoto enegrecido no meio, amarelado nas margens. Pleuras com os escleritos com porções mais escuras salvo a esternopleura que é amarelada e o hipopleurito que é parcialmente enegrecido; pronoto com a divisão anterior possuindo três cerdas, a posterior com curta cerdosidade; anepisternito com quatro cerdas além de pilosidade; pteropleura com três.

Pernas: Coxa anterior amarelada, a mediana e a posterior esbranquiçadas, esta basalmente mais escura. Trocânteres e fêmures amarelados, os medianos e posteriores com a extremidade

mais escura. Tíbias amareladas, os tarsos escuros. Tíbia mediana com 5 cerdas dorsais, 3 externas e 3 ventrais. Tíbia posterior com 5 cerdas dorsais e 7 externas.

Asa com a porção costal de tonalidade amarelada, o restante levemente mais escuro. Forquilha de *M* cerca de uma e meia vezes o comprimento de *r-m*. Segunda forquilha apreciavelmente aquém da primeira. Balancim amarelado.

Abdomen com os tergitos enegrecidos; II a VI extensamente amarelados no meio, nos lados de III a VII com extensas manchas também amareladas; revestidos de longa pilosidade enegrecida. Esternitos extensamente amarelados.

Genitália (fig. 21): Basistilo com os lobos basalmente fundidos, adelgado e encurvado, quase duas vezes a maior largura, cerdoso no ápice. Dististilo sub-dividido em dois lobos; o primeiro quase uma e meia vezes o comprimento do basistilo, delgado, uniforme, esparsamente cerdoso salvo no ápice onde existem sete ou oito cerdas diferenciadas; o segundo lobo digitiforme, com mais da metade do comprimento do basistilo e esparsamente cerdoso. Mesosoma pouco mais longo que largo e arredondado, possuindo duas protuberâncias laterais em ângulo obtuso e com uma cerda antes do ápice, a porção mediana com quatro lamelas formando um desenho; basalmente uma saliência da qual saem quatro cerdas. Nono tergito (fig. 55) muito longo, isto é, com aproximadamente uma e meia vezes o comprimento do basistilo mais o dististilo e cerdoso.

Fê m e a. — Semelhante ao macho.

Tipos. — Holótipo macho; alótipo fêmea; parátipos três machos e cinco fêmeas. Registrados sob os números 7248 a 7253.

Localidade tipo. — Boracéia, XI.1947 (Rabello, Travassos F.º e J. Lane col.).

Delopsis travassosi, n. sp.

Comprimento do corpo 3 mm; asa 2,5 mm.

M a c h o. — Cabeça castanho-clara salvo estria enegrecida no meio; revestida de pilosidade dourada, as cerdas enegrecidas. Antena com uma e meia vezes o comprimento da coxa anterior; escapo pouco mais longo que o toro, ambos amarelados e com cerdas na porção distal e superior, flagelo com os segmentos três a dez basalmente amarelados em proporção maior nos basais, o

restante bem como os demais segmentos castanho-escuros. Palpo amarelado.

Tórax: Mesonoto castanho, amarelado nas margens, no meio com mancha mais escura, indistinta e muito apagada; porção pré-escutelar com uma mancha castanho-escura em formato de U; revestimento formado por pilosidade dourada e enegrecida além de cerdas laterais mais longas e quatro cerdas transversalmente dispostas na região pré-escutelar. Escutelo basalmente amarelado, distalmente mais escuro. Postnoto castanho-escuro no meio, o restante amarelado. Pleuras amareladas, as margens de alguns dos escleritos mais escuras; hipopleura castanha; pronoto anterior com três cerdas longas, o posterior com cerdas esparsas e pequenas; anepisternito com uma fileira de cinco, o pteropleurito com outra de quatro cerdas; pleurotergito com um grupo de três ou quatro pequenas cerdas.

Pernas: Coxas esbranquiçadas, a anterior com cerdas e densa pilosidade, a posterior enfuscada na base; duas ou três cerdas apicais na mediana e uma na posterior. Trocânteres esbranquiçados. Fêmures esbranquiçados. Tíbias e tarsos gradualmente mais escuros. Tibia mediana com 5 cerdas dorsais, 3 externas, 3 ventrais e 2 internas. Tibia posterior com 6 cerdas dorsais, 6 externas, além de uma fileira de 7 pequenas cerdas dorso-internas.

Asa sem manchas, com leve tonalidade amarelada anteriormente. Pecíolo de *M* muito curto. Segunda forquilha pouco aquém da primeira. Balancim amarelado.

Abdomen castanho-enegrecido salvo nos ângulos internos apicais onde é um pouco mais claro.

Genitália (fig. 18): Basistilo com os lobos fundidos basalmente, mais de duas vezes a maior largura, alargados apicalmente onde existe, na margem superior, uma fileira de seis cerdas diferenciadas. Dististilo sub-dividido em dois lobos: o primeiro arredondado e com densa fileira superior de cerdas, o restante esparsamente cerdoso; o segundo glabro, com cerdas disformes e diferenciadas. Mesosoma ovalado, com duas estruturas fortemente esclerotizadas, com aparência de chifres, serrilhadas na margem interna, as lâminas laterais dobradas em ângulo reto, no meio uma estrutura sub-quadrangular esclerotizada e que, no centro, possui um processo complexo. Nono tergito (fig. 54) sensivelmente mais curto que o basistilo, delgado e homogêneamente revestido de curta cerdosidade.

Fêmea. — Semelhante ao macho.

Tipos. — Holótipo macho; alótipo fêmea; parátipos cinco machos e sete fêmeas. Registrados sob os números 7254 a 7261.

Localidade tipo. — Boracéia, VIII.1947 (Rabello, Travassos F.º e J. Lane col.); XI.1947 (Rabello e Travassos F.º col.).

O nome desta espécie é dado em homenagem a um dos seus colecionadores o Dr. Lauro P. Travassos F.º do Departamento de Zoologia da Secretaria de Agricultura do Estado de S. Paulo.

Delopsis miltoni, n. sp.

Comprimento do corpo 3,2 mm; asa 3 mm.

Fêmea. — Cabeça castanho-escura, revestida de pilosidade dourada, as cerdas castanhas. Antena com uma e meia vezes o comprimento da coxa posterior; escapo e toro amarelados; primeiros dois segmentos flagelares amarelados, os demais enegrecidos. Palpo amarelado.

Tórax: Mesonoto esbranquiçado salvo três manchas castanho-escuras, a primeira anterior e cuneiforme, as outras duas laterais e quase unidas à mediana; região pré-escutelar com grande mancha enegrecida bem como outra mancha mais escura sobre a raiz da asa; cerdas pré-escutelares seis, as duas internas pequenas; revestimento formado por pilosidade dourada. Escutelo amarelado salvo estria longitudinal enegrecida que se dilui nas extremidades. Postnoto enegrecido no meio, amarelado nos lados. Pleuras castanho-escuras; pronoto anterior com quatro cerdas longas, o posterior com duas além de outras menores; anepisternito com uma fileira de quatro cerdas, além de duas menores e pilosidade; pteropleurito com quatro cerdas; pleurotergito com algumas.

Pernas: Coxas amareladas, os ápices castanhos. Trocânteres castanhos. Fêmures amarelados, as bases do mediano e posterior enegrecidas bem como o sexto distal do posterior. Tíbias e tarsos gradualmente mais escuros, a posterior enegrecida na base e ápice. Tíbia mediana com 5 cerdas dorsais, 3 externas, 3 ventrais e 1 interna. Tíbia posterior com 11 dorsais em duas fileiras e 3 externas.

Asa com leve tonalidade amarelada. Pecíolo de *M* pouco mais longo que *r-m*. Segunda forquilha da asa pouco aquém da primeira. Balancim amarelado salvo pequena mancha castanha entre a haste e o capítulo.

Abdomen castanho-enegrecido, dorsalmente os segmentos III a VII apresentam nítidas faixas basais amareladas, maior em III; ventralmente é ele extensamente amarelado.

Macho. — Desconhecido.

Tipo. — Holótipo fêmea. Registrada sob o n. 7262.

Localidade tipo. — Boracéia, XI.1947 (Travassos e Rabello col.).

O nome desta espécie é dado em homenagem ao Dr. Milton Peña, Diretor do Serviço de Psicopatas, que muito nos auxiliou a fim de tornar possível a pesquisa periódica de Boracéia.

Delopsis tristis, n. sp.

Comprimento do corpo 3 mm; asa 2,8 mm.

Fêmea. — Cabeça castanho-enegrecida, revestida de pilosidade amarelada. Antena com uma e meia vezes o comprimento da coxa anterior, o escapo e toro amarelados com algumas cerdas escuras; primeiro segmento flagelar com a base amarelada, o restante bem como os demais segmentos enegrecidos. Palpo amarelado.

Tórax: Mesonoto castanho-escuro, mais claro para os lados e para trás existindo duas estrias castanho-enegrecidas formando um V e que, da porção anterior, vão até a região pré-escutelar onde se unem à mancha enegrecida dessa região; revestimento formado por cerdosidade amarelada; seis cerdas pré-escutelares transversalmente dispostas. Escutelo castanho-escuro no centro, amarelado nas margens laterais. Postnoto castanho. Pleuras castanho-escuras salvo a esternopleura e a parte anterior do pleurotergito que são amareladas; pronoto anterior com três cerdas, o posterior com duas cerdas longas, além de outras menores; anepisternito com cerca de dez cerdas espalhadas na porção superior; pteropleurito com duas cerdas grandes e duas outras muito pequenas; pleurotergito com duas ou três cerdas.

Pernas: Coxas amareladas bem como os trocânteres e fêmures. Tibias e tarsos gradualmente mais escuros. Tibia mediana com 7 cerdas dorsais sendo duas deslocadas, 3 externas, 3 ventrais e 2 internas. Tibia posterior com 10 cerdas dorsais em duas fileiras e 5 externas.

Asa com leve tonalidade amarelada. Pecíolo de *M* pouco mais longo que *r-m*. Segunda forquilha pouco aquém da primeira. Balancim com a haste amarelada e o capítulo castanho.

Abdomen com os primeiros cinco segmentos dorsalmente enegrecidos, o sexto e outros na maior parte amarelados; lateral e inferiormente extensamente amarelados. Cerci alongados e com dois segmentos.

Macho. — Desconhecido.

Tipos. — Holótipo fêmea. Registrado sob o n. 7263.

Localidade tipo. — Boracéia, XI.1947 (Rabello, Travassos F.º e Lane col.).

Delopsis lugubris, n. sp.

Comprimento do corpo 3,8 mm; asa 3,6 mm.

Fêmea. — Cabeça castanha, mais escura no meio, revestida de pilosidade esbranquiçada. Antena com uma e meia vezes o comprimento da coxa anterior; escapo, toro e primeiro segmento flagelar com as bases amareladas, o restante enegrecido bem como os demais segmentos. Palpo amarelado.

Tórax: Mesonoto castanho, com duas estrias enegrecidas formando um V e que, na região pré-escutelar unem-se e originam a mancha pré-escutelar; entre as estrias existe anteriormente uma pequena mancha escura, cuneiforme; revestimento formado por pilosidade esbranquiçada e cerdas castanhas; duas cerdas transversais na região pré-escutelar. Escutelo castanho, apenas com os lados estreitamente amarelados. Postnoto castanho. Pleuras superiormente mais escuras, a esternopleura mais clara no meio, o hipopleurito quase que totalmente amarelado; divisão anterior do pronoto com quatro cerdas longas e duas mais curtas, a posterior com cerca de doze cerdas; anepisternito com quatro cerdas longas além de outras menores e mais curtas; pteropleurito com pequena mancha de cerdas.

Pernas: Coxas amareladas. Trocânteres e fêmures um pouco mais escuros. Tíbias e tarsos escuros. Tíbia mediana com 5 cerdas dorsais, 3 externas e 4 ou 5 internas. Tíbia posterior com 5 cerdas dorsais e 7 externas.

Asa de tonalidade amarelada. Segunda forquilha sensivelmente além da primeira. Balancim amarelado exceto pequena mancha escura entre a haste e o capítulo.

Abdomen com os primeiros segmentos enegrecidos, de IV em diante aparecem manchas basais mais claras e em V e VI outras apicais; ventralmente é ele extensamente amarelado.

Macho. — Desconhecido.

Tipo. — Holótipo fêmea. Registrada sob o n. 7264.

Localidade tipo. — Boracéia, XI.1947 (Rabello, Travassos F.º e J. Lane col.).

Delopsis humboldti, n. sp.

Comprimento do corpo 2,8 mm; asa 2,4 mm.

Mach o: — Cabeça amarelada salvo larga faixa longitudinal mediana de coloração castanho-escura, revestida de pilosidade dourada. Antena quase duas vezes o comprimento da coxa anterior; escapo e toro amarelados, cerdosos superiormente, primeiro segmento flagelar extensamente marcado de amarelo, quarto ao sexto estreitamente amarelados na base, o restante bem como os demais segmentos castanho-escuros. Palpo amarelado.

Tórax: Mesonoto amarelado, pouco mais claro nas margens e ornamentado com distinta estria enegrecida, longitudinal que, da margem anterior, vai até a região pré-escutelar onde existe grande mancha dessa cor separada da estria. Escutelo amarelado com uma estria mediana castanho-escura e diluída nas extremidades. Postnoto amarelado, castanho-escuro no meio. Pleuras amareladas com as margens de alguns dos escleritos mais escuras; hipopleurito parcialmente escurecido; pronoto anterior com três cerdas além de uma ou duas menores, o posterior com cinco ou seis; anepisternito com duas cerdas além de outras menores e esparsas; pteropleurito com duas cerdas; pleurotergito com quatro ou cinco.

Pernas: Coxas esbranquiçadas, a posterior mais escura na base. Trocânteres um pouco mais escuros. Fêmures esbranquiçados. Tíbias e tarsos mais escuros. Tíbia mediana com 5 cerdas dorsais, 3 externas, 2 internas e 2 ventrais. Tíbia posterior com 5 cerdas dorsais e 7 externas.

Asa hialina. Pecíolo de *M* muito curto, a forquilha à altura de *r-m*. Segunda forquilha distintamente além da primeira. Balancim amarelado.

Abdomen dorsalmente castanho-enegrecido, ventralmente extensamente amarelado.

Genitália (fig. 19): Basistilo sub-quadrangular, uma e meia vezes a maior largura, cerdoso superiormente. Dististilo com menos de um terço do comprimento do basistilo e formado por um único lobo curto, grosso e ornamentado de quatro cerdas diferenciadas no ápice. Mesosoma sub-quadrangular, quase tão lar-

go quanto longo e terminado em dois bicos com as pontas voltadas para dentro. Nono tergito (fig. 52) cerca do mesmo comprimento que o basistilo, sub-triangular e munido de cerdas diferenciadas na margem interna, o restante cerdoso e espiculoso.

Fêmea. — Desconhecida.

Tipos. — Holótipo macho; parátipos dois machos. Registrados sob os ns. 7265 a 7267.

Localidade tipo. — Boracéia, VIII.1947 e XI.1947 (Rabello, Travassos F.º e J. Lane col.).

O nome desta espécie é dado em homenagem ao autor do livro "Kosmos", Barão Alexandre von Humboldt.

Delopsis pluripunctata, n. sp.

Comprimento do corpo 2,2 mm; asa 2 mm.

Macho. — Cabeça amarelada salvo uma estria longitudinal enegrecida que vai desde a inserção das antenas até a nuca; revestida de pilosidade dourada, as cerdas marginais castanho-escuras. Antena cerca de uma e meia vezes o comprimento da coxa anterior; estapo castanho-enegrecido; toro e primeiro segmento flagelar amarelo-esbranquiçados, os demais segmentos enegrecidos. Palpo amarelado.

Tórax: Mesonoto castanho-amarelado, para as margens esbranquiçado; com o seguinte desenho enegrecido: duas manchas quase unidas na margem anterior, quatro adiante da raiz da asa, uma estria que do meio do disco vai até a região pré-escutelar, duas manchas alongadas e acima da raiz da asa, a região pré-escutelar com grande mancha enegrecida; revestimento formado por pilosidade amarelada; quatro cerdas pré-escutelares transversalmente dispostas. Escutelo amarelado-claro salvo uma estria mediana longitudinal enegrecida que se dilui nas extremidades. Postnoto amarelado. Pleuras castanho-claras, algumas das margens dos escleritos enegrecidas; hipopleurito castanho; pronoto anterior com duas cerdas longas, o posterior com cinco ou seis; anepisternito com uma fileira de quatro cerdas; pteropleurito com duas e o pleurotergito com três.

Pernas: Coxas esbranquiçadas salvo a posterior que é castanho-enegrecida na base, a anterior revestida de pilosidade e cerdas, a mediana com algumas e a posterior com uma ou duas cerdas. Trocânteres e fêmures esbranquiçados. Tíbias e tarsos gradualmente mais escuros. Tibia mediana com 5 cerdas dorsais;

5 externas e 2 ventrais. Tibia posterior com 5 cerdas dorsais e 4 externas.

Asa hialina. Pecíolo da *M* muito curto, a forquilha pouco além de *r-m*. Segunda forquilha sensivelmente além da primeira. Balancim amarelado.

Abdomen castanho-claro, os segmentos com faixas apicais muito discretas.

Genitália (fig. 20): Basistilo cerca de uma e meia vezes a maior largura, com quatro longas cerdas na margem externa, espiculoso e com pequenas e esparsas cerdas no meio. Dististilo subdividido em dois lobos; o primeiro mais longo que o basistilo, a margem externa e ápice cerdosos, terminado por duas cerdas diferenciadas, uma encurvada e a outra alongada; segundo lobo com quase o comprimento do basistilo, possuindo uma protuberância além da base, o ápice terminado por uma longa cerda diferenciada. Mesosoma ovalado, com duas saliências sub-laterais, o ápice com as lâminas discretas e terminadas em um bico, o meio com estruturas complexas e com dois filamentos apicais. Nono tergito (fig. 60) uma e meia vezes o comprimento do basistilo, alargado para a ponta onde existe uma curta cerda diferenciada e grossa, o restante espiculoso e cerdoso.

Fêmea. — Semelhante ao macho.

Tipos. — Holótipo macho; alótipo fêmea; parátipo uma fêmea. Registrados sob os ns. 7267 a 7269.

Localidade tipo. — Boracéia, VIII e XI.1947 (Rabello, Travassos F.º e J. Lane col.).

Delopsis rabelloi, n. sp.

Comprimento do corpo 2,8 mm; asa 2,4 mm.

Mach o. — Cabeça amarelada, com estreita faixa longitudinal mediana enegrecida, revestida de pilosidade dourada, as cerdas castanho-claras. Antena com uma e meia vezes o comprimento da coxa anterior; escapo uma e meia vezes o comprimento do toro, castanho e com cerdas superiores, toro amarelo-claro, com algumas cerdas superiormente; terceiro segmento antenal (primeiro flagelar) da cor do toro, o restante do flagelo castanho-escuro. Palpo castanho-claro.

Tórax: Mesonoto com tegumento castanho-claro, tornando-se esbranquiçado nas margens e possuindo a seguinte ornamentação: anteriormente uma estria cuneiforme castanho-clara; da raiz da asa, para traz e ao lado da estria duas outras manchas

alongadas e castanho-escuras; região pré-escutelar com uma mancha enegrecida em formato de U e que invade a porção basal do escutelo; revestimento formado por densa pilosidade amarelada e enegrecida além de esparsas cerdas escuras; porção pré-escutelar com quatro cerdas longas e transversalmente dispostas. Escutelo com a base enegrecida, o restante amarelado. Postnoto amarelado salvo duas pequenas manchas basais castanhas. Pleuras amareladas, a porção anterior de alguns dos escleritos mais escura; hipopleurito castanho-escuro; pronoto anterior com três cerdas longas, o posterior com algumas esparsas; anepisternito com uma fileira de seis cerdas; pteropleurito com outra de quatro; pleurotergito com quatro ou cinco cerdas em grupo.

Pernas: Coxas amareladas salvo a posterior que é extensamente castanho-escura na base; coxa anterior densamente revestida de pilosidade e cerdas mais escuras, a mediana com três ou quatro, a posterior com uma única cerda. Trocânteres e fêmures amarelados. Tíbias mais escuras bem como os tarsos. Tibia mediana com 5 cerdas dorsais, 3 externas, 2 ventrais e 2 internas. Tibia posterior com 6 cerdas dorsais e 6 externas.

Asa sem manchas, de tonalidade amarelada para a base. Peciolo de *M* curto, a forquilha de *M* pouco além de *r-m*. Segunda forquilha distintamente aquém da primeira. Balancim amarelado.

Abdomen castanho, os segmentos com anéis apicais mais largos, densamente revestidos de pilosidade mais escura.

Genitália (fig. 23): Basistilo pouco menos de duas vezes a largura basal, superiormente cerdoso. Dististilo sub-dividido em dois ramos; o primeiro bem mais longo que o basistilo, adelgado, encurvado e com três cerdas diferenciadas no ápice; o segundo pouco esclerotizado, curto, esparsamente cerdoso e possuindo, na base, pequena protuberância em formato de bastão. Mesosoma com os filamentos laterais afastados e terminados em ponta; porção mediana, superiormente bastante esclerotizada, capitiforme e modificada em diversas estruturas complexas. Nono tergito (fig. 58) com uma e meia vezes o comprimento do basistilo, homogêneamente espiculoso e bastante cerdoso.

Fêmea. — Semelhante ao macho. Abdomen com as cercas de coloração avermelhada e curtas.

Tipos. — Holótipo macho; alótipo fêmea; parátipos dois machos e quatro fêmeas. Registrados sob os ns. 7271 a 7276.

Localidade tipo. — Boracéia, VIII a XI. 1947 (Rabello, Travassos F.º e J. Lane col.).

O nome desta espécie é dado em homenagem a um dos seus colecionadores, Sr. Ernesto Xavier Rabello, do Departamento de Zoologia da Secretaria de Agricultura do Estado de S. Paulo.

Delopsis maculipennis (Enderlein, 1911).

1911, *Plastacephala maculipennis* Enderlein, Stet. Ent. Zeitg., 72: 176, 178.

Temos um macho, que concorda com a descrição original. Aproveitamos esta ocasião para descrevê-lo e o eleger como o alótipo desta espécie.

Mach o. — Cabeça castanha, revestida de pilosidade amarelada. Antena com um e dois terços vezes o comprimento da coxa anterior; escapo, toro e primeiros seis segmentos flagelares amarelados, os outros enegrecidos. Palpo amarelado.

Tórax: Mesonoto brilhante, pontilhado, amarelado anteriormente e gradualmente tornando-se mais escuro para traz; revestido de longa pilosidade amarelada e com seis cerdas pré-escutulares horizontalmente dispostas. Escutelo enegrecido no meio, amarelado para os lados. Postnoto castanho-escuro no meio, esbranquiçado para os lados. Pleuras (transfixadas pelo alfinete).

Pernas: Coxas e trocânteres amarelados. Fêmures amarelados, o posterior enegrecido no ápice. Tíbia mediana com 11 cerdas dorsais em duas fileiras, 4 externas e 3 ventrais. Tíbia posterior enegrecida na base, com 14 ou 15 cerdas dorsais dispostas em duas fileiras e 3 laterais.

Asa: Possuindo mancha escura no meio e que de *r-m* vai até a forquilha de *M*. Pecíolo de *M* muito curto. Segunda forquilha à altura da primeira. Balancim amarelado.

Abdomen castanho-enegrecido, segmentos IV e V mais claros na base, VI no ápice.

Genitália (fig. 24): Basistilo com os lobos fundidos e formando um anel que possui, no meio e anteriormente, uma protuberância revestida de longas cerdas. Dististilo largo, curto, existindo no ápice quatro cerdas grossas e longas. Mesosoma (fig. 38) sub-quadrangular e com estruturas diferenciadas e complexas como poderá ser apreciado na ilustração. Nono tergito (fig. 61) mais longo que o basistilo mais o dististilo, sub-triangular e cerdoso.

Tipo. — Alótipo macho. Registrado sob o n.º 7277.

Localidade tipo. — Estado de S. Paulo, Juquiá, IV. 1941 (J. Lane col.).

Agradecimentos.

E' com prazer que aqui consignamos os nossos agradecimentos pelo auxílio recebido de diversos colegas. Ao Dr. Lauro P. Travassos Filho que organizou o estudo periódico da região de Boracéa, Município de Salesópolis, cujos excelentes resultados não se fizeram esperar. Mais uma vez, devido a tal método de colheita de material, ficou demonstrada a periodicidade de aparecimento de adultos pertencentes a diferentes gêneros e espécies, e comprovado que qualquer região só se torna amplamente conhecida depois de periódico colecionamento. Fazemos votos para que este nosso colega consiga manter tal plano de estudos por mais alguns anos e também agradecemos ao seu colaborador, Sr. Ernesto Xavier Rabello pelo grande auxílio prestado na colheita do material.

Muito grato somos ao Dr. Theodureto de Camargo, diretor do Departamento de Produção Vegetal (Secretaria da Agricultura), que colocou a estação de Boracéa a nossa disposição para o estudo de sua fauna entomológica, e ao Dr. Milton Peña, do Serviço de Assistência aos Psicopatas, a quem devemos a grande facilidade de transporte. Consignamos também aqui os nossos agradecimentos ao Dr. Paul Freeman do British Museum (Natural History), pelo inestimável auxílio prestado em comparar o nosso material com os tipos existentes nessa Instituição. Este trabalho é ilustrado pelo Sr. E. B. Ferraz.

Resumo.

Um novo gênero e vinte e nove espécies são descritas de material proveniente de Boracéa, Município de Salesópolis, no Estado de São Paulo, Brasil. Os alótipos de cinco espécies, previamente conhecidas, são também designados.

Summary.

A new genus and twenty nine new species are described from material collected at Boracéa, in the municipality of Salesópolis in the State of S. Paulo, Brazil. The allotypes of five previously known species are designated.

Mirídeos Neotropicais. XXXII: Duas Espécies Novas do Gênero *Tentheocris* Scott (Hemiptera).

Por José C. M. Carvalho, Museu Nacional, Rio de Janeiro.

(Com 11 figuras)

As espécies do gênero *Tenthecoris* Scott foram revistas recentemente pelos entomólogos Tsai-yu Hsiao e Reece I. Sailer (Jour. Wash. Acad. Sci., 37 (2): 64-72). Neste trabalho o Autor descreve duas outras não incluídas naquele trabalho, ambas do Brasil. Ao Dr. Sailer, que teve a gentileza de confirmá-las e fornecer material para comparação, os agradecimentos do Autor.

Tenthecoris hsiao, n. sp.

Próximo a *T. balloui* Hsiao & Sailer, diferindo todavia pela coloração das antenas, mancha negra dos hemiélitros e genitália do macho.

Macho: comprimento 3,3 mm., largura 1,8 mm. Cabeça: comprimento 0,2 mm., largura 0,8 mm., vértice 0,5 mm. Antenas: segmento I, comprimento 0,2 mm.; II, 0,7 mm.; III, 0,3 mm.; IV, 0,6 mm. Pronoto: comprimento 0,7 mm., largura na base 1,4 mm.

Coloração geral: lúteo-avermelhada a vermelho; metade apical do clavo, região mediana interna comissural do cório, região basal da membrana, olhos, segmento II da antena para o ápice negros. A mancha dos hemiélitros assume forma arredondada anteriormente, tornando-se mais estreitada para o ápice do cório (fig. 11).

Genitália: harpago esquerdo (fig. 1) de forma peculiar, com dois dentes medianos na sua face ventral direita, terminado em dilatação globulosa apical. Exemplos de Sta. Catarina mostram apenas um dente bem desenvolvido, com vestígios do segundo, que é também mais afastado do primeiro. Harpago direito (figs. 2 e 3) laminar, conchiforme.

Fêmea: semelhante ao macho em cor, apenas ligeiramente mais robusta (comprimento 3,5 mm., largura 2,0 mm.).

Holótipo: fêmea, São Paulo, Brasil, O. Monte cõl.; alótipo: macho; parátipos: 10 machos e 11 fêmeas, mesmas indicações que o tipo; 2 machos e 2 fêmeas, São Francisco, Sta. Catarina, 28-X-935, J. Alves Jor. col., nas coleções do Museu Nacional e do Autor.

Tenthecoris nanus, n. sp.

Caracterizada pelo seu minúsculo porte e genitália do macho.

Machos: comprimento 2,6 mm., largura 1,3 mm. Cabeça: comprimento 0,2 mm., largura 0,6 mm., vértice 0,3 mm. Antenas: segmento I, comprimento 0,1 mm.; II, 0,5 mm.; III, 0,2 mm.; IV, 0,3 mm. Pronoto: comprimento 0,4 mm., largura na base 1,0 mm.

Coloração geral: lútea a avermelhado; olhos, ápice do segmento II da antena, escutelo e clavo, exceto extrema base, região mediana interna comissural do cório, aréolas exceto região posterior negros ao píceo-brilhante; ápice do abdomen castanho; vistos de lado, o tilo e o abdomen são mais avermelhados que o restante da porção inferior, sendo o esterno e as pernas flavos; superiormente a região anterior do pronoto e os hemiélitros são também mais vermelhos que o restante. A mancha negra dos hemiélitros assume forma ovoide (fig. 10).

Região anterior aos calos proeminente, avançando ligeiramente sobre o vértice, pilosidade densa, adpressa, dourada, fêmures posteriores bruscamente afilados no quarto apical onde deixam sair algumas tricobótrias, curvos para traz.

Genitália: harpago esquerdo (fig. 4) curvo, mais engrossado no ápice, onde é chanfrado em forma de colher, tendo ponta recurvada. Harpago direito (figs. 5 e 6) também chanfrado de um lado, muito curvo terminando em ponta laminada.

Fêmea: semelhante ao macho em cor e dimensões, um pouco mais robusta.

Planta hospedeira: tinhorão.

Holótipo: macho, Viçosa, Minas Gerais, Brasil, VIII-943, Carvalho col.; **alótipo:** fêmea, mesmas indicações que o tipo. **Parátipos:** 6 fêmeas e 6 machos, localidade dos tipos: 2 fêmeas, Tijuca, D. F., I-946, Carvalho col.; 7 machos e 8 fêmeas, Corcovado, D. F., Carvalho col.; 2 machos, Jacarèpaguá, D. F., D. F., 16-XII-945, Carvalho col.; 1 macho e 1 fêmea, Rio de Janeiro, D. F., I-944, Wygodzinsky col.; 3 fêmeas, Botafogo, D. F., Carvalho col., nas coleções do Museu Nacional e do Autor.

Para facilitar o reconhecimento das espécies do gênero *Tenthecoris*, o Autor resolveu incluir no presente trabalho algumas figuras da genitália de *T. bicolor*, espécie-tipo do gênero e a

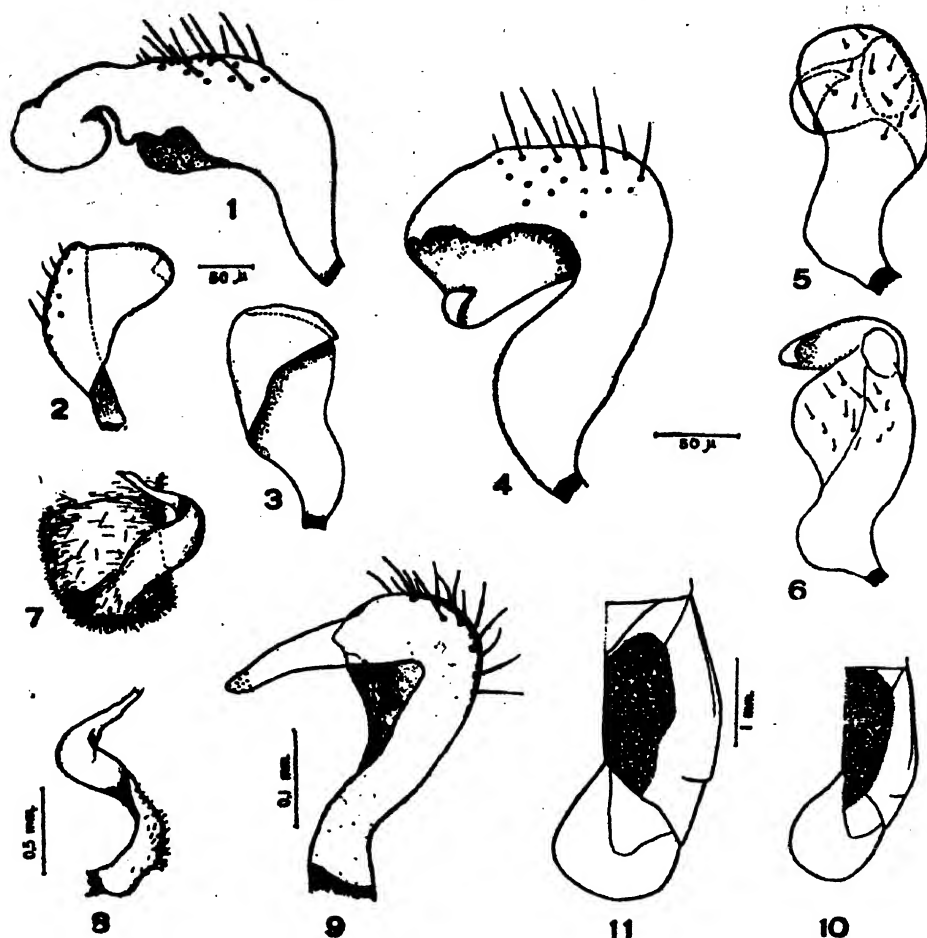


Fig. 1. *Tenthecoris hsiao* n. sp., harpago esquerdo — Fig. 2-3. Idem, harpago direito em duas posições. — Fig. 4. *Tenthecoris nanus* n. sp., harpago esquerdo. — Fig. 5-6. Idem, harpago direito em duas posições. — Fig. 7. *Tenthecoris bicolor* Scott, esquema do IX segmento abdominal com o harpago esquerdo. — Fig. 8. Idem, harpago esquerdo. — Fig. 9. Idem, harpago direito. — Fig. 10. Esquema da mancha negra do hemiélitro, de *T. nanus* n. sp. — Fig. 11. Idem, de *T. hsiao* n. sp.

mais comum no Brasil. Para identificação das espécies foi aproveitada a chave de Hsiao & Sailer (l. c.), com modificações para incluir *hsiao* n. sp. e *nanus* n. sp.

Chave das Espécies de *Tenthecoris*.

1. Espécies menores de 4 mm. de comprimento..... 2
- Espécies maiores de 4 mm. de comprimento..... 5
2. Escutelo totalmente negro; área negra do cório igualando a largura do clavo somente no ápice deste..... 3
- Escutelo vermelho ou com apenas o ápice ou um V negro apical; área negra do cório igual ou maior que a largura do clavo em 2/3 do seu comprimento 4

3. Espécie de porte minúsculo; aréolas enfumadas apenas na base; pronoto com calos e área anterior a eles muito mais vermelhos que o disco; segmento I da antena flavo..... *nanus* n. sp.
- Espécie de porte médio; aréolas totalmente negras; pronoto de coloração vermelha uniforme; segmento I da antena fusco no ápice e na base..... *balloui* Hsiao & Sailer
4. Escutelo com apenas o extremo ápice negro; mancha negra do clavo ultrapassando o extremo ápice negro do escutelo quando tal cor existe *hsiaoi* n. sp.
- Escutelo com um V negro, mancha negra do clavo terminando ao nível da mancha do escutelo formando com ela uma linha reta..... *distinctus* Hsiao & Sailer
5. Hemielitros totalmente negros, exceto extrema base 6
- Hemielitros com margens laterais vermelhas ou ocráceas..... 7
6. Segmento II da antena cerca de 2 vezes mais longo que o I..... *generosus* (Stal)
- Segmento II da antena muito menos que 2 vezes mais longo que o I *exitiosus* (Distant)
7. Tibias negras ou com manchas negras..... 8
- Tibias sem vestígio de negro 12
8. Margem pálida dos hemielitros com maior largura, geralmente menor, nunca maior que o comprimento da fratura cuneal..... 9
- Margem pálida dos hemielitros com maior largura excedendo o comprimento da fratura cuneal 10
9. Cúneo negro, exceto na extrema margem lateral..... *angustimarginatus* Hsiao & Sailer
- Cúneo vermelho amarelado ou vermelho..... *bicolor* Scott
10. Área negra do cório ocupando muito menos da metade interna do mesmo; porção pálida do cório com lados quase paralelos ou gradualmente estreitados para a base; clipeo distintamente fusco.... 11
- Área negra do cório ocupando quase metade interna do cório; porção pálida do cório perceptivelmente estreitada ao nível do terço basal; clipeo não distintamente fusco..... *vestitus* (Distant)
11. Margem basal da área negra do clavo distintamente distal daquela do escutelo, formando com a margem lateral da área negra do cório um ângulo obtuso de aproximadamente 135..... *confusus* Hsiao & Sailer
- Margem basal da área negra do escutelo e clavo quase em linha reta; margem basal da mancha negra do clavo e margens laterais da área negra do cório formando aproximadamente um ângulo reto.. *distingendus* Hsiao & Sailer
12. Segmento II da antena mais longo que a largura do vértice mais a de um olho; segmento IV distintamente mais pálido que o IV.... *colombiensis* Hsiao & Sailer
- Segmento II da antena mais curto que a largura do vértice mais a de um olho; segmento III não distintamente mais pálido que o IV.. *venezuelensis* Hsiao & Sailer

Summary.

Tenthecoris hsiaoi n. sp. and *T. nanus* n. sp., from Brazil, (Hemiptera, Miridae) are being described and their genitalia figured. A key for the species of *Tenthecoris* is also given.

**Contributions Towards the Knowledge of the Genus
Cryptostemma Herrich-Schaeffer, 1835 (Cryptostemmatidae,
Hemiptera).**

By Petr Wygodzinsky,
Instituto de Medicina Regional, Universidad Nacional de Tucumán.

(With 51 text-figures)

Since the beginning of our studies on the morphology and taxonomy of the Cryptostemmatidae we have been anxious to examine representatives of the type genus, *Cryptostemma* Herrich-Schaeffer, 1835. The recent papers by Usinger (1945) and China (1946) on several species of this genus led us to look for specimens at their typical habitat, viz. under stones near mountain rivers. Though a great variety of genera and species of Cryptostemmatidae has been found by us in the plains and mountains of the city and State of Rio de Janeiro, no *Cryptostemma* has turned up. The subfamily Cryptostemmatinae seems to be represented in Southeastern Brazil exclusively by the genus *Ceratocombus*, which was found quite frequently at all localities visited. We therefore accepted gratefully the opportunity given to us by Dr. L. H o b e r l a n d t, Prague, and Prof. R. L. U s i n g e r, Berkeley, who very kindly sent material of the genus *Cryptostemma* for study. Our sincere thanks are due to both these gentlemen.

We have thus been able to examine in detail specimens of *Cryptostemma alienum* Herrich-Schaeffer, *uhleri* McAtee & Malloch and *pratti* Usinger. Though all these species, as well as the others of the genus, are rather similar superficially, detailed microscopical examination has offered such a wealth of differential characters that there may even arise doubts on the generic relationships of the species involved.

Below we give drawings of all the essential parts of the males of the three species. The abdominal sclerites and the genitalia can be easily homologized with the respective parts of *Trichotonannus setulosus* Reuter, recently analyzed by us (Wygodzinsky, 1947). Though the three species agree rather well as to the structure of the male abdomen there is one point where *alienum* differs fundamentally from the two American species. The right-hand parasternite VIII of *alienum*, characterized as such by its stigma, takes a dorsal position and becomes articulated at its base, forming thus a movable appendage. In *uhleri* and *pratti*, the right-hand parasternite VIII, though somewhat detached from the sternite, does not become articulated and maintains its lateral

position. In the two latter species, on the other hand, the posterior submedian process of the tergite VIII which is very short and inconspicuous in *alienum*, becomes very long, though it is not articulated. It is probable that the mentioned process of the American species and the movable process of the European species are functionally homologous, though morphologically analogous only.

The parasternite VI of the left-hand side possesses a large hook-like process in *alienum*, which is completely absent in the American species. We have not been able to find any other fundamental morphological differences accompanying those mentioned and which would allow to separate generically the American species from *Cryptostemma alienum*, type of the genus. To complicate matters still further, the genitalia of *uhleri* and *pratti* are not completely homologous. As already mentioned by U s i n g e r (1945), the male of *uhleri* has a sack-like appendage arising from the posterior border of the right-hand parasternite VII, the homologies of which we are unable to indicate, and which is completely absent in *pratti*. The male of *uhleri* differs furthermore from that of *pratti* by a process of the posterior coxa, and the presence of an opening at the anterior border of the abdominal sternite III, the significance of which is not yet understood.

We have also examined the female of *uhleri*; descriptions and figures are given below, under the heading of that species.

Cryptostemma alienum Herrich-Schaeffer, 1835

Material examined: Nová Hut., Bohemia, Nickerl col. (3 macropterous ♂♂).

The characters of head and thorax are shown in figs. 1 and 2. The pilosity of the eyes, the distribution of the macrochaetae on the head and the short and stout rostrum, as well as the shape of the very distinct mesothoracic sternites are characteristic of the genus.

Details of fore and hind legs are shown in figs. 9-12. The fore legs are stout and do not possess any spinelike bristles; these are present on the median and hind legs, those of the posterior tibiae scarcely attaining the length of the diameter of this joint. All tarsi are three-jointed, of moderate length; the claws of the first pair are gently curved, those of the hind pair sharply bent near their base.

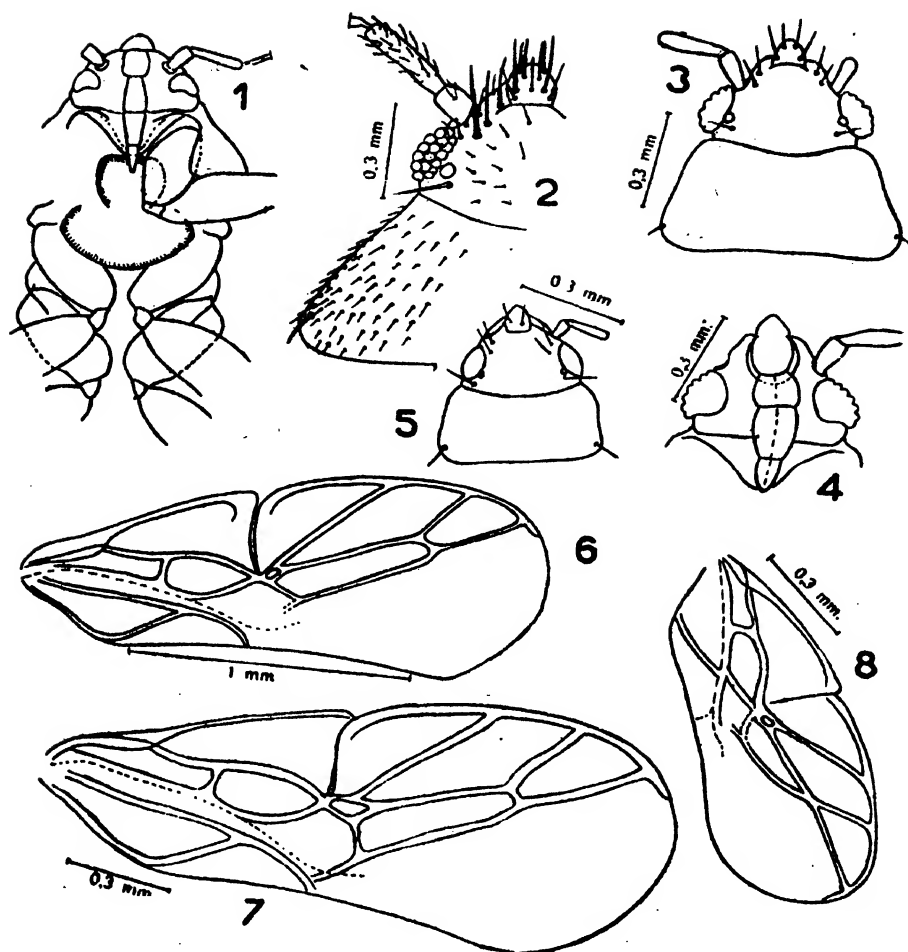


Fig. 1. *Cryptostemma allenum*, head and thorax, seen from below. — Fig. 2. *C. allenum*, head and pronotum, seen from above. — Fig. 3. *C. uhleri*, head and thorax, seen from above. — Fig. 4. *C. uhleri*, head, seen from below. — Fig. 5. *C. prattli*, head and pronotum, seen from above. — Fig. 6. *C. allenum*, hemelytron. — Fig. 7. *C. uhleri*, hemelytron. — Fig. 8. *C. prattli*, hemelytron. — (Wygodzinsky del.)

The venation of the fore wings is shown in our fig. 6.

Figs. 16 and 19 demonstrate the general aspect of the male abdomen. The ninth sternite is very large; its length equals the length of all other segments combined. The parasternite of the sixth segment is prolonged into a forwardly directed process, which bears apically two short bristles (fig. 41). The seventh segment is simple, nowhere fused with the eighth segment, and the parasternites are not differentiated, the segment thus forming a complete ring. The eighth sternite covers the whole ventral

surface of the abdomen as well as one third of the right-hand dorsal surface of the same. The eighth tergite is very small, entire, of rather irregular shape, medially and posteriorly with a short bilobate process. The right-hand parasternite is transformed into a dorsally situated and backwardly directed movable appendage the tip of which, when in rest (fig. 34), lies partly hidden below the basal process of the hypopygium. The left-

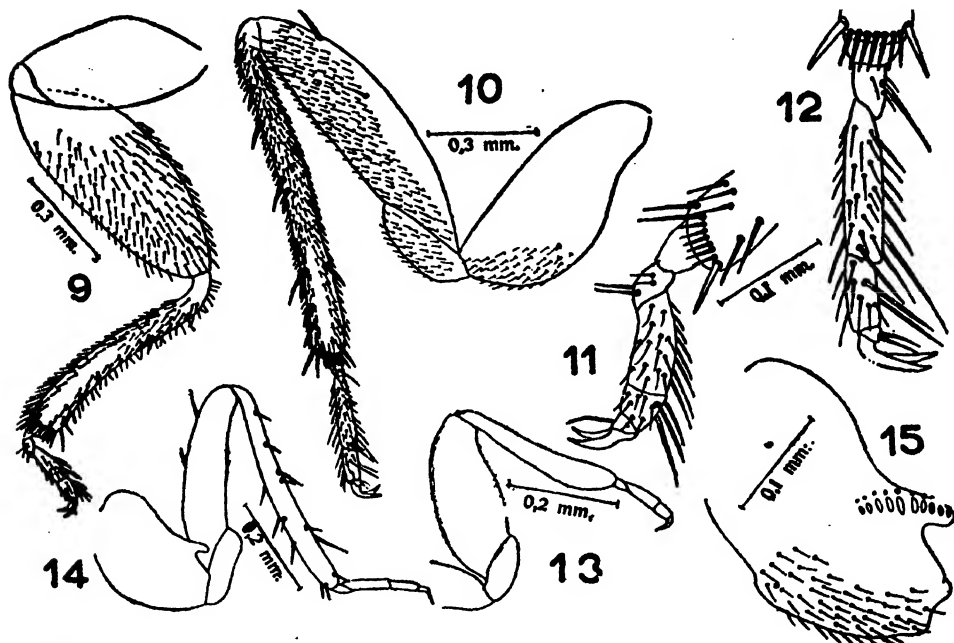


Fig. 9. *Cryptostemma allenum*, fore leg. — Fig. 10. *C. allenum*, hind leg. — Fig. 11. *C. allenum*, tarsus of fore leg. — Fig. 12. *C. allenum*, tarsus of hind leg. — Fig. 13. *C. uhleri*, fore leg. — Fig. 14. *C. uhleri*, male, hind leg. — Fig. 15. *C. uhleri*, male, coxa of hind leg. — (Wygodzinsky del.)

hand parasternite (fig. 42) is also transformed into a movable appendage, rather stout, sharply bent at its apical third, truncate and almost bare apically. Its apex apparently comes into contact with the circular group of bristles on the left-hand side dorsal surface of the hypopygium (fig. 34). The latter (fig. 33) is almost circular, with a large basal and a smaller dorsal opening. The center of its basal dorsal bridge is provided with several peculiar projections and, on its left-hand side, with two groups of rather stout bristles. One of these groups contains bristles arranged more or less in a circle and that obviously come in touch with the left-hand side parasternite VIII; the other group consists of bristles forming a parallel-sided group and that seems

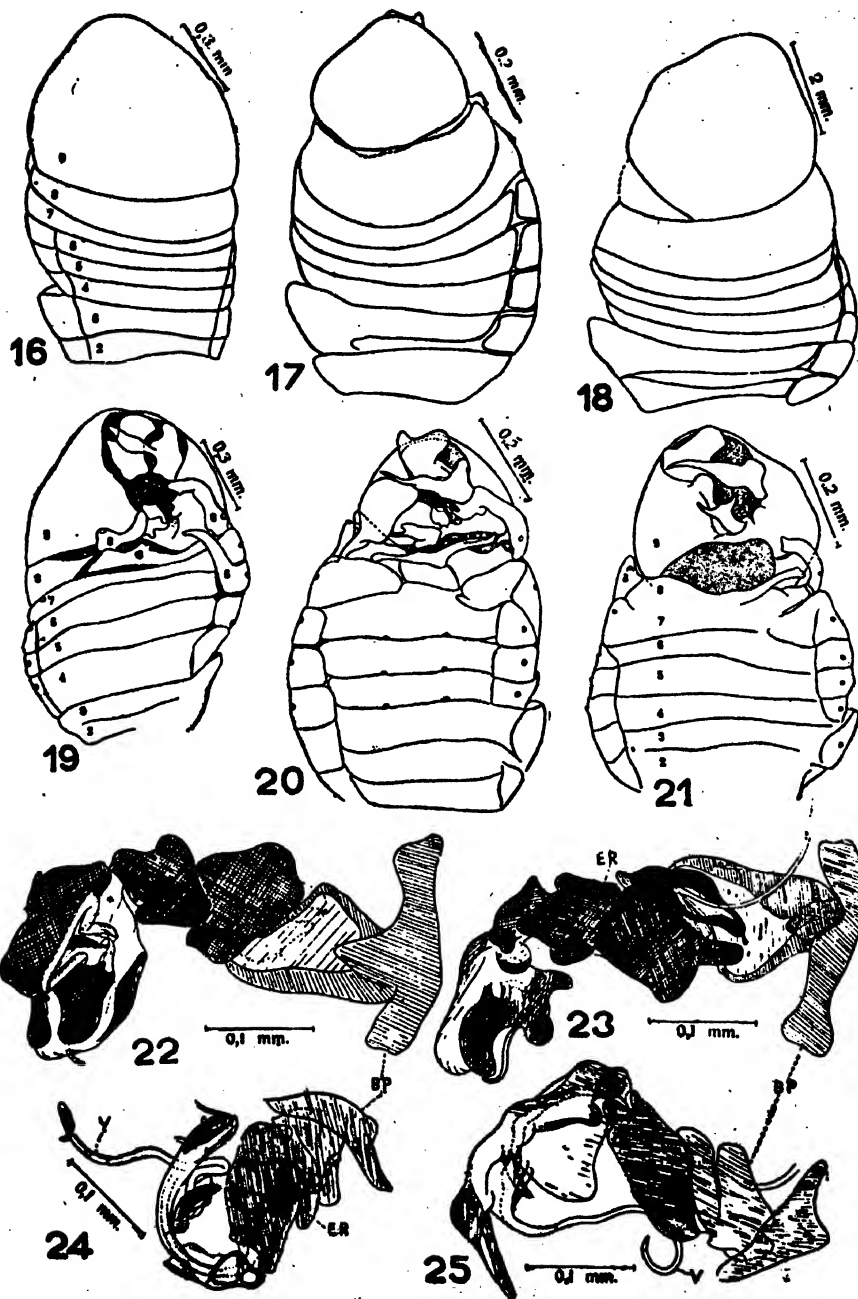


Fig. 16. *Cryptostemma allenum*, male, ventral surface of abdomen. — Fig. 17. *C. uhleri*, male, ventral surface of abdomen. — Fig. 18. *C. pratti*, ventral surface of abdomen. — Fig. 19. *C. allenum*, dorsal surface of abdomen. — Fig. 20. *C. uhleri*, dorsal surface of abdomen. — Fig. 21. *C. pratti*, dorsal surface of abdomen. — Fig. 22. *C. allenum*, aedeagus. — Fig. 23. *C. allenum*, aedeagus, different aspect. — Fig. 24. *C. pratti*, aedeagus. — Fig. 25. *C. pratti*, aedeagus, different aspect. — (Wygodzinsky del.)

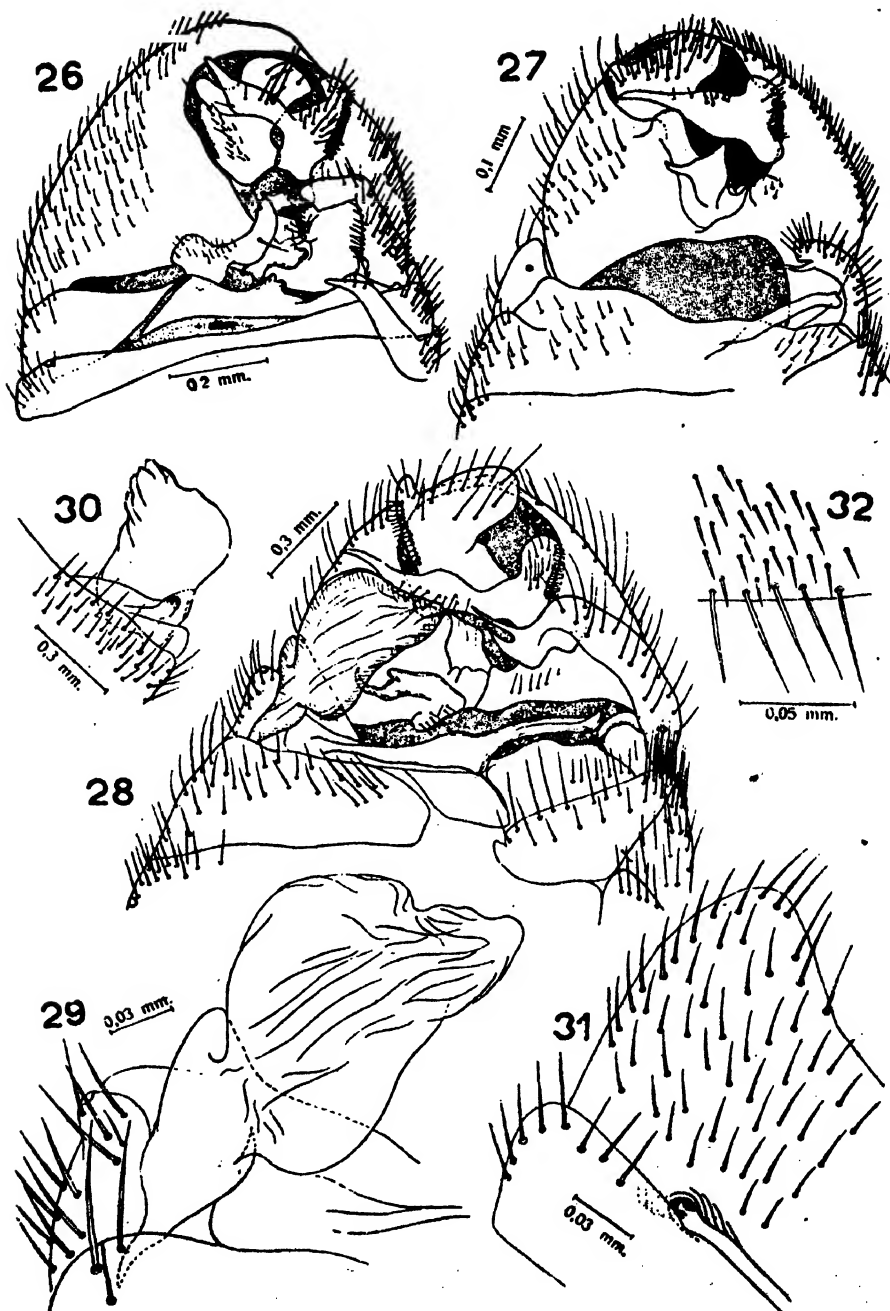


Fig. 26. *Cryptostemma allenum*, male, dorsal view of genital region. — Fig. 27. *C. pratti*, male, dorsal view of genital region. — Fig. 28. *C. uhleri*, male, dorsal view of genital region. — Fig. 29. *C. uhleri*, male, sac-like appendage of parasternite VII; seen from above. — Fig. 30. The same, as seen from below. — Fig. 31. *C. uhleri*, male, opening at anterior border of sternite III. — Fig. 32. *C. allenum*, bristles of sternite V. — (Wygodzinsky del.)

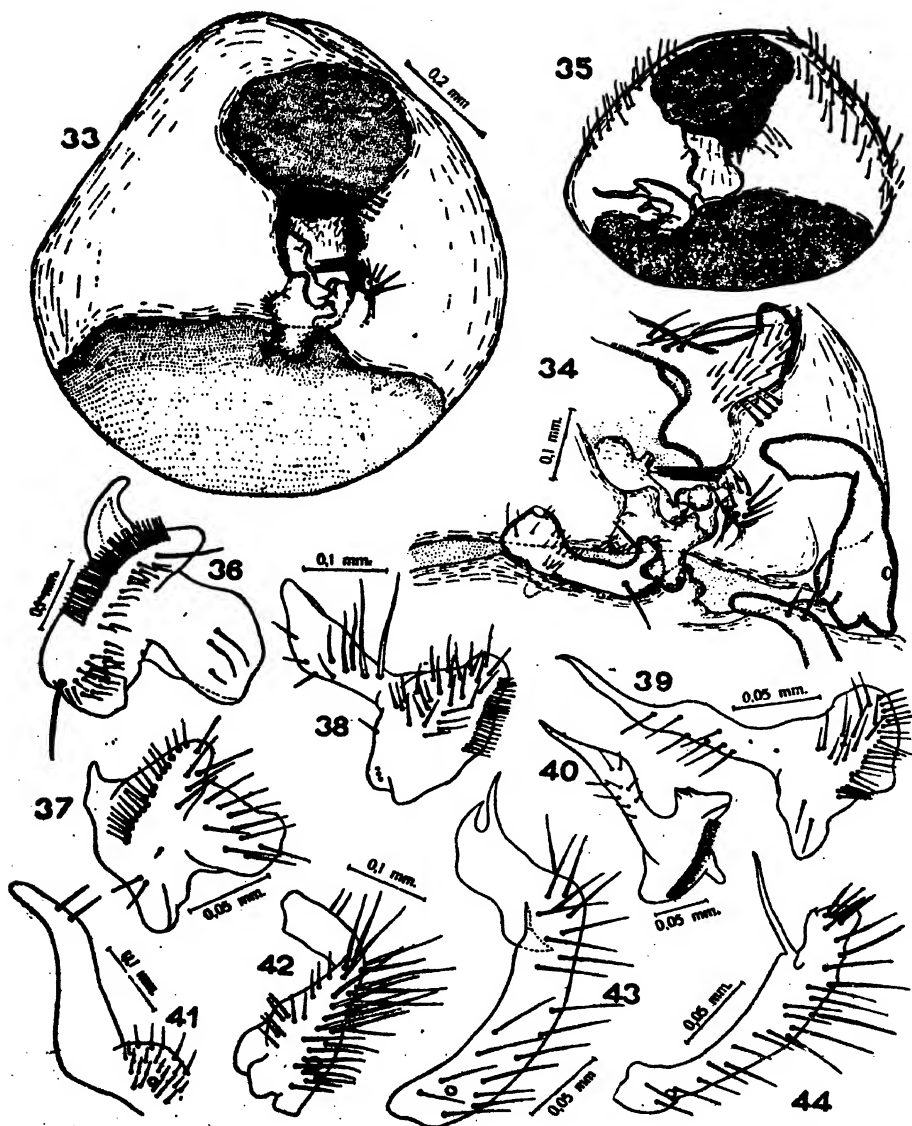


Fig. 33. *Cryptostemma allenum*, male, hypopygium as seen from above. — Fig. 34. *C. allenum*, male, central region of hypopygium, with posterior border of tergite VIII and its modified parasternites. — Fig. 35. *C. uhleri*, male, hypopygium as seen from above. — Fig. 36. *C. allenum*, male, right-hand clasper. — Fig. 37. *C. uhleri*, male, right-hand clasper. — Fig. 38. *C. allenum*, male, left-hand clasper. — Fig. 39. *C. uhleri*, male, left-hand clasper. — Fig. 40. *C. pratti*, male, left-hand clasper. — Fig. 41. *C. allenum*, male, process of left-hand parasternite VI. — Fig. 42. *C. allenum*, male, left-hand parasternite VIII. — Fig. 43. *C. uhleri*, male, left-hand parasternite VIII. — Fig. 44. *C. pratti*, male, left-hand parasternite VIII. — (Wygodzinsky del.)

to come in contact with the anal cone. The latter inserts at the base of the dorsal opening of the hypopygium. We finally observe the two claspers that close almost completely the mentioned opening. Their shape and chaetotaxy are shown in detail in our figs. 36 and 38; the marginal comb-like bristle-rows apparently control the contact with the borders of hypopygial opening. The exact shape of the aedeagus is difficult to make out (figs. 22 and 23), owing to its minute size. The basal plates (BP) are asymmetrical; they are followed by an equally asymmetrical and very complex phallosoma which shows numerous chitinized plates; an ejaculatory duct with a circular ejaculatory reservoir (ER) can be made out; the apical projecting portion of the vesica (V) is rather slender, but comparatively short. It is obvious that China (1946) has not examined the aedeagus in great detail, as he describes it for his *C. sordida* as "relatively simple" and does not show it on his fig. 5b.

Our fig. 34 shows in detail the posterior region of the eighth tergite and the basal region of the dorsal surface of the hypopygium, in what seems to be the natural position of the different sclerites and bristle-groups when in rest. It is not difficult to imagine the modification of the position of the various parts as well as the sensory function of the bristles when the genitalia enter into action.

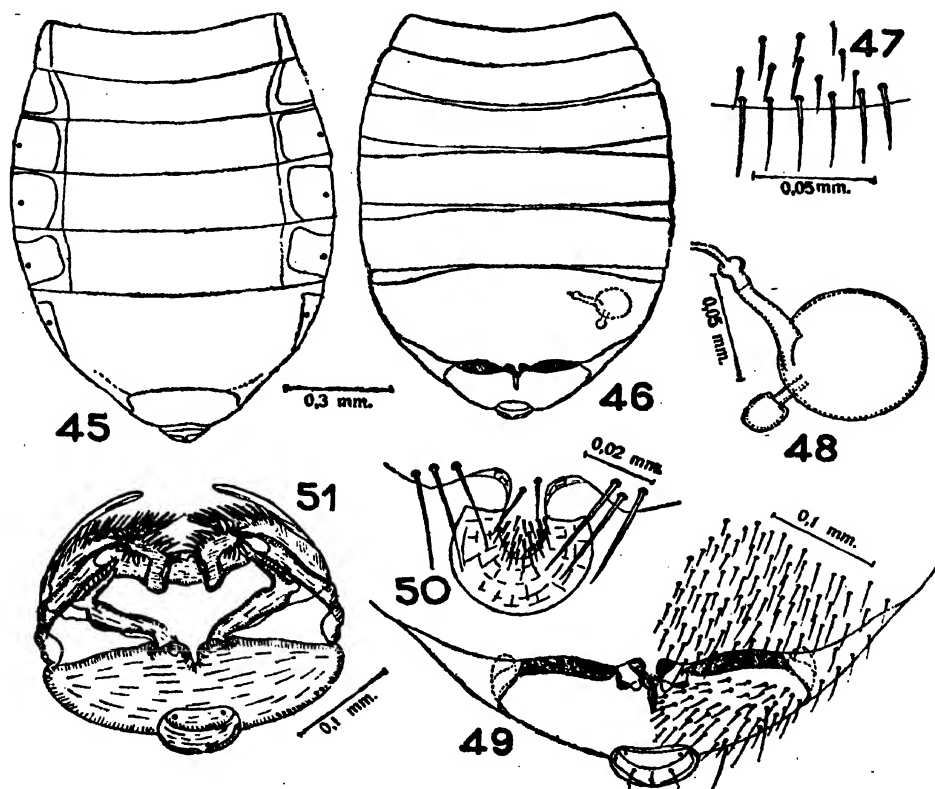
Cryptostemma uhleri McAtee & Malloch, 1925

Material examined: Lake Trahyta, Vogel Park, Georgia, U.S.A., 30-9-1944, R. L. Usinger col. (3 ♂♂, 1 ♀, all macropterous).

As was already mentioned by Usinger (1945) the specimens in hand may represent a species different from the real *uhleri*, based exclusively on females from Mexico.

The head and thorax of this species are shown in figs. 3 and 4. These parts resemble much those of *alienum*, and differ only by their relative measurements. The forelegs of both sexes and the hindlegs of the female are much as in *alienum*, though slightly stouter. The spinelike bristles on the median and hind

legs of the male are somewhat longer. The chief difference, however, is to be found in the very curious short process of the hind coxae of the male, and on which we find two series of more strongly chitinized minute elevations (figs. 14 and 15). This organ has probably sensory function.



Cryptostemma uhleri, female. Fig. 45. Abdomen, seen from above. — Fig. 46. Abdomen, seen from below. — Fig. 47. Bristles of sternites. — Fig. 48. Spermatheca. — Fig. 49. Genital region, seen from above. — Fig. 50. Posterior median process of sternite VIII. — Fig. 51. Last tergite with concealed genital appendages. — (Wygodzinsky del.)

Fig. 7 shows the venation of the forewing of this species. It is very similar to that of *alienum*.

The general aspect of the abdomen of the male is shown in figs. 17 and 20. A curious lateral opening can be made out near the anterior border of the third tergite; its signification cannot even be guessed. The ninth sternite is relatively shorter than in *alienum*, being not much longer than the eighth; the latter

is larger than any of the remaining segments. There is no lateral process on the parasternite VI. The tergites VII and VIII are divided into several sclerites of irregular shape, the exact homologies of which are difficult to make out. The right-hand parasternite VIII is laterally situated, and not prominent; the left-hand parasternite VIII is in the shape of an elongate appendage (figs. 28, 43) which is bent on its apical third, bifid and bare apically (this appendage was called "left clasper" by Usinger, 1945). The paratergite VIII possesses on its posterior border medially an elongate projection which is directed to the left-hand side. A large sack-like appendage (denominated "right clasper" by Usinger) arises from the posterior border of the right-hand side parasternite VII; the apex of this appendage reaches the center of the hypopygium dorsally (figs. 28, 29). This appendage seems to be hollow and, when viewed from its ventral surface, seems to possess an opening near its base. The hypopygium (fig. 35) resembles that of *alienum*. Its base is provided with several projections, the largest of which comes into contact with the sack-like appendage of the 7th segment (fig. 28). The claspers are of the same type as those of *alienum*, though specific differences are obvious (figs. 37, 39). The aedeagus was not examined.

There are no secondary sexual characters that would serve to distinguish the macropterous ♀ of *C. uhleri* from the ♂. The only differences to be found are in the structure of the abdomen, and are intimately connected with the genitalia.

As was to be expected the abdomen of the female (figs. 45 and 46) is entirely symmetrical. The sternites are well delimited; the tergites are not very distinct. The second to seventh segments are complete; the eighth segment is apparently only represented by 1+1 small lateral sclerites. The apical segment is probably the ninth tergite which has a dorsal and a ventral portion and bears on its apex the anus at the base of which several small sclerites are visible. The genital opening consists of a transversal slit between the hind border of the seventh sternite and the anterior margin of the last abdominal segment (fig. 49). The seventh sternite bears in the center of its posterior border a

short claviform process (fig. 50) which is provided apically with very minute bristles and an extremely delicate shield-like semi-circular lamina around its apex. Careful dissection of the genitalia of the female shows us further complex structures attached to the last abdominal segment (fig. 51) which probably correspond to the strongly modified gonapophyses. The left-hand side of the abdomen contains in the seventh segment a small spherical organ (also mentioned by China for his *C. sordida*) which we believe is the spermatheca (fig. 48). It consists of a large circular body, a small mushroom-shaped appendage which seems to be closed apically, and an elongate tubular duct that is more strongly chitinized at its base.

Cryptostemma pratti Usinger, 1945

Material examined: El Yunque, Porto Rico, 29-4-1945, R. L. Usinger col. (1 male, paratype).

Head and thorax as in fig. 5. The legs are much as in *uhleri*, though the posterior coxae are simple. The venation of the fore wings is exceedingly difficult to make out; the specimen in hand is apparently slightly brachypterous.

Figs. 18 and 21 demonstrate the general aspect of the abdomen of this species. The eighth and ninth sternites are both quite large, as in the preceding species. There is no opening on the third sternite, neither is there a sack-like appendage at the seventh segment. The seventh and eighth tergites are completely fused medially; the parasternites of the seventh segment are confluent with the sternite, and only partly separated from the tergite. The right-hand side parasternite VIII is slightly prominent; the left-hand one (denominated left clasper by Usinger) resembles those of the preceding species; our fig. 44 shows its general shape, its very elongate slender subapical process and its bristles which attain its rounded apex. The submedian process of the posterior margin of the eighth sternite is much like that of the preceding species. The basal projections of the hypopygium are of very peculiar shape; the claspers (figs. 27, 40) are of the usual type. The aedeagus (figs. 24 and 25) shows the same general features as that of *allenum*, though it

differs considerably in details. Its basal plates (BP) are of a different shape; the phallosoma, though possessing the same basic characteristics, is different; the ejaculatory reservoir (ER) is approximately T-shaped, and the vesica (V) is much longer and slightly but distinctly coiled apically.

References.

- China, W. E., 1946, New Cryptostemmatidae (Hemiptera) from Trinidad, British West Indies. — Proc. Roy. Ent. Soc. London, ser. B., vol. 15 (11-12), pgs. 148-154, 5 fgs.
- Unger, R. L., 1945, Notes on the genus *Cryptostemma* with a new record for Georgia and a new species from Puerto Rico (Hemiptera: Cryptostemmatidae). — Ent. News, vol. 54, pgs. 238-241.
- Wygodzinsky, P., 1947, Sur le *Trichotonannus setulosus* Reuter, avec une théorie sur l'origine des harpagones des Hétéroptères mâles (Hemiptera, Heteroptera, Cryptostemmatidae). — Rev. Franç. Ent., Paris, vol. 14 (2), pgs. 118-125, 23 fgs.

Notes sur les Chrysomélides de l'Amérique du Sud (Col.).

Par Jan Bechyné, Prague.

(Avec 11 figures)

Ayant reçu matériel important communiqué par MM. les Drs. D. Mendes, P. Wygodzinsky et F. Monrós, je suis en mesure de publier des indications précises sur les localités de quelques espèces des vrais Chrysomélides (Superf. *Chrysomeloidea*, Fam. *Chrysomelidae*), accompagnées des diagnoses de formes encore inconnues. On sait bien que la plupart des indications anciennes sont, en général, très incomplètes, p. ex. "Brasilia", "Amérique du Sud" etc.

Tout d'abord, il faut faire une remarque sur la systématique des vrais Chrysomélides, créée par J. Weise (1915). Le Dr. S. H. Chen (1936) les a divisés en deux sousfamilles: *Timarchinae* (seulement dans la région holarctique) et *Chrysomelinae* s. str. Ces derniers forment plusieurs groupes, dont un, très richement représenté dans la région néotropicale, est caractérisé par les épipleures élytraux ciliés (du côté interne) dans la moitié postérieure:

1(4) Crochets des tarsi simples

2(3) Dernier article des palpes maxillaires très allongé, plus de deux fois aussi long que le précédent; crochet des tarsi rapprochés, contigus à la base; article 4e des tarsi en dessous inerme; tête profondément engagée dans le prothorax qui l'entoure en demi-cercle (fig. 1). —

Type: *Barymela* Weise, de Madagascar... Tribu: *Barymelini*, nov. Autres genres de ce groupe: *Barymelina* Achard, *Antongi-litis* Achard (tout les deux de Madagascar) et *Hispostoma* Weise (d'Afrique méridionale). C'est une ancienne lignée gondwanienne, probablement la plus ancienne parmi tous les vrais Chrysomélides.

3(2) Dernier article des palpes maxillaires plus court, le plus souvent plus court que le penultième. Tête peu engagé dans le prothorax qui est seulement fortement émarginé en avant (fig. 2). Il y a des exceptions chez quelques espèces européennes du genre *Chrysochloa* Hope, mais celles-ci ont les crochets des tarsi divergents, non contigus à la base. Cette tribu est composée de nombreux groupes de genres répandus dans le monde entier. On peut les classer le plus facilement d'après la conformation du sternum. Crochets des tarsi rapprochés, divariqués ou divergents

Tribu: *Chrysolini* Weise, Chen.

La tribu des *Zygogrammini* est tout-à-fait artificielle, étant composée tantôt de *Barymelini*, caractérisés plus haut, tantôt de "vrais *Zygogrammini*", tantôt du genre *Doryphora* Illiger, qui n'a rien de commun avec les précédents ayant son mésosternum prolongé en une épine très caractéristique.

4(1) Crochets des tarsi appendiculés (ou bifides?). Australie; un seul genre de l'Amérique du Sud: *Leioptaxis* Chevrolat.

Tribu: *Dicranosternini* Weise, Chen.

Aux *Chrysolinini* néotropicaux, comptant plus que 800 espèces, appartiennent les plus grandes espèces du monde entier. Leur classification systématique est très difficile; on ne connaît que peu d'espèces, la variabilité est à peine connue, les conditions biologiques et zoogéographiques sont également fort peu connues.

Abbreviations: IEEA = Instituto de Ecologia e Experimentação Agrícola, Ministério da Agricultura, Rio de Janeiro; MP = collections du Muséum National, Prague; B = ma collection (in MP).

Genre *Zygogramma* Chevrolat

1. *Zygogramma nitidicollis* Bech.

5 metatypes: Brasilia, Nova Teutonia (Fritz Plaumann), IEEA. — Les exemplaires sont un peu moins grands que le type; ils en diffèrent en plus par le labre brun ou brun noir (noir chez le type). Cette espèce diffère très nettement de *Z. tetragramma* Klug, par le pronotum très éparsément ponctué.

2. *Zygogramma mendesi*, n. sp.

Hab. Brasilia: Est. do Rio, Itatiaia, 9.1922 et 11.1922 (Dario Mendes), type et cotype, IEEA.

Long. corp. 7.0-7.5 mm.

Speciei *Z. 4-lorata* Stal (cuius specimen typicum ante oculos habeo) pronoti sculptura et elytrorum vitta discali intervalli tertii incurvata sicut et coloratione affinis, antennarum articulis apicalibus fortius dilatatis, elytrorum seriebus punctorum 4-7 apice obsoletis, intervallis laevibus, haud microscopice punctulatis staturaque elongata et majore species haec nova ab ea differt.

In opusculo meo (1944) pg. 309, sub 8(1) adde:

8(1) Elytrorum intervallis...

9(10) Elytrorum intervallo tertio incurvato.

9a(9b) Corpore breviter ovali, minore 5.5-6.0 mm), elytrorum punctis apice diminutis sed distinctis..... *4-lorata* Stal

9b(9a) Corpore elongato, majore (7.0-7.5 mm), elytrorum punctis apice obsoletis *mendesii* n. sp.

Je suis heureux de dédier cette espèce nouvelle à M. le Dr. Dario Mendes, auquel je suis très obligé pour la confiance qu'il me témoigne en me permettant de faire la révision des Chrysomélides de l'IEEA.

3. *Zygogramma 4-lorata* Stal

Brasilia, Est. Espirito Santo: Guandu, 26.11.1920 (E. Hoffmann), IEEA; ibid.: Afonso Claudio, 11.9.1928 (O. Conde), IEEA.

4. *Zygogramma virgata* Stal

Brasilia, Minas: Passa Quatro, 12.1914 (Jaeger), IEEA; Est. São Paulo, ville de São Paulo, 4.3.1921 (W. Melzer), IEEA; ibid.: Campos de Jordão, 1600 m, 3.1945 (P. Wygodzinsky), IEEA; Rio Grande do Sul, 7.1927 (coll. Nestor Fagundes), IEEA. — Argentina: Buenos Aires, Punta Lara, 3.1941 (Dr. F. Monrós), B.

5. *Zygogramma flavotaeniata* Stal

Brasilia, Est. São Paulo: Franca, 1903 (O. Dreher leg.), IEEA.

6. *Zygogramma flavivittis* Stal

Argentina, Salta: Coronel Moldes, 3.1945 (Dr. F. Monrós), B. — Ab. *adpicta* n. ab.: Diffère du type par l'intervalle 7 fauve au tiers apical. Capturé par M. le Dr. F. Monrós avec la forme typique, à la localité nommée plus haut.

7. *Zygogramma rivulosa* Stal, f. typ.

Brasilia, Goiaz: Campinas, 12.1935 (Borgmeier & S. Lopes), IEEA.

8. *Zygogramma gounellei* Achard

Brasilia, Goiaz: Anapolis, 15.5.1944 (Ben-Hur Ramos), IEEA.

9. *Zygogramma catamarcana*, n. sp.

Hab. Argentina: Catamarca (ville de), 4.1928 (cl. Bocchio), type, MP.

Long. corp. 7.5 mm.

Minus nitida, pronoto nitidiore, picea, pectore brunneo, capite nigro, maculis duabus vertice, palpis et antennis (apice infuscatis) rufo-testaceis, labro piceo; pronoto nigro; flavo-ornato (cf. fig. 4), marginibus ipsis angustissime nigrescentibus, scutello piceo; elytris flavis, sutura, intervallis 2°, 4°, 6° et 8°, margine et basi extremis epipleuris postice nigris; pedibus piceis.

Capite sat fortiter punctato, sulcis ocularibus distinctis, sul-

cis reliquis obsoletis, antennarum articulis apicalibus parum transversis. Pronoto valde transverso ($3 \times$ latiore quam longiore), basi latissimo, lateribus antrorsum subrecte parum angustatis, angulis anticis late rotundatis; disco sat tenuiter et sparse, ad latera fortiter et confluentim punctato, portionibus flavis laevibus. Elytris longitudinaliter punctato-sulcatis, sulcis profundis, sed punctis eorum paucis et obsoletis, intervallis laevibus, interv. 3° , 5° et 7° ante apicem coeuntibus, interv. 3° quam vicinis duplo latiore; sutura antice sensim elevata. Metasterno medio laevi, ad latera cum episternis fortiter punctato, abdomine fortiter punctato, ad latera viridi-micante.

Capitis sulcis frontali et clypealibus obsoletis, pronoto magis transverso, elytrorum intervallis non punctulatis, aliter coordinatis (cf. fig. 4) et abdomine fortiter punctato a specie *Z. virgata* Stal (cuius typum ante oculos habeo) differt.

10. *Zygogramma obstructa*, n. sp.

Hab. Brasilia, Est. São Paulo: Engenheiro Coelho, 1920 (A. Richter), type, IEEA; Paraguay: Sapucay, 8.2.1942. (Coll. Monrós, paratype).

Long. corp. 8.5 mm.

Picea, parum nitida, subtus subaeneo-splendens; capite rufopiceo, fronte plagis duabus magnis fulvis, labro, palpis, antennis et pedibus rufis; pronoto flavo, marginibus extremis et maculis 4 discalibus scutelloque obscure brunneis; elytris flavis, sutura anguste, intervallis 2° (hoc apice fulvo), 4° , 6° et 8° , basi summa, margine externo angustissime epipleurisque postice rufobrunneis.

Capite solum clypeo punctato, sulcis omnibus (incl. sulco frontali longitudinali) distinctis, antennarum articulis 8° - 10° valde transversis. Pronoto medio latissimo, lateribus rotundatis, disco tenuiter et sparse, in maculis brunneis externis fortiter, confluentim et rugose punctato. Elytris punctato-sulcatis, punctis distinctis, intervallis microscopice punctulatis, intervallis 3° , 5° et 7° (luteis) quam vicinis multo latioribus, interv. 6° ante apicem sensim abbreviato, interv. 4° et 8° ante apicem coeuntibus, Abdomine ad latera sat fortiter punctato.

Elytrorum intervallis flavis valde dilatatis, intervallo 6° abbreviato, capitis sculptura pronotique lateribus rotundatis a speciebus *Z. virgata* Stal et *Z. catamarcana* species haec nova discrepat.

11. *Zygogramma (Tritaenia) 6-taeniata* Stal
Argentina, Salta: Coronel Moldes, 2.1945 (Dr. F. Monrós),
B. — La Plata, IEEA.

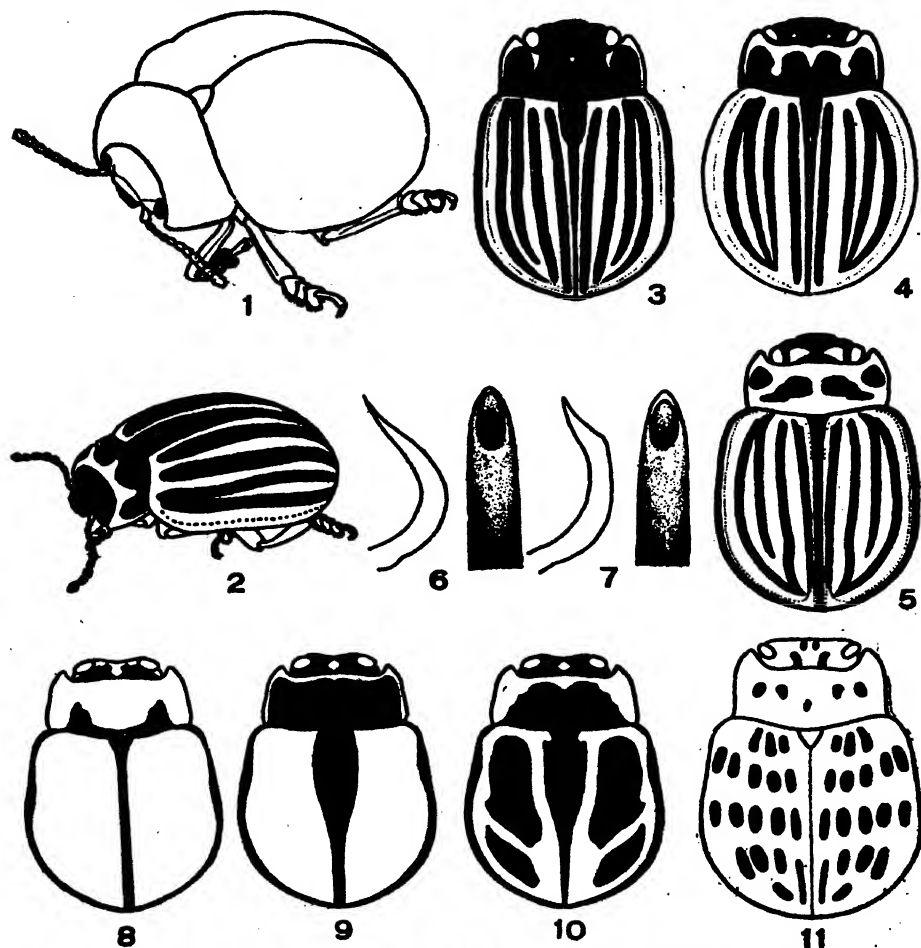


Fig. 1. *Barymetia unicolor* Fairm. (Madagascar). — Fig. 2. *Zygogramma marginicollis* Achard (Argentina), typus. — Fig. 3. *Zygogramma 9-virgata* Stal (Brasília). — Fig. 4. *Zygogramma catamarcana* n. sp. (Argentina). — Fig. 5. *Zygogramma obstructa* n. sp. (Brasília). — Fig. 6. *Stichotaenia habnata* Stal, ♂ genitalia. — Fig. 7. *Stichotaenia biforis* Germ., ♂ genitalia. — Fig. 8. *Stichotaenia biforis* ab. *simpli- cissima* n. ab. (Brasília). — Fig. 9. *Stichotaenia biforis* ab. *intersaepta* n. ab. (Brasília). — Fig. 10. *Stichotaenia biforis* ab. *pollens* n. ab. (Brasília). — Fig. 11. *Dorysterna intermaculata* Stal (Brasília).

Genre *Cosmogramma* Erichson

1. *Cosmogramma fulvocincta* Stal f. typ.

Brasília, Est. São Paulo: Angatuba, 1.1923 (Büssmeyer),
IEEA; Eug. Lefèvre, 1.11.1937 (Travassos, Lopes & Oiticica),
IEEA; Est. do Rio: Itatiaia, 800 m, 12.1933 (S. Lopes & R.
Cunha), IEEA; ibid., 700 m, 6.4.1947 (W. Zikán), B. — Mi-
nas Gerais: Cambuquira, 12.1932 (A. Marques), IEEA.

2. *Cosmogramma wygodzinskyi*, n. sp.

Hab. Brasilia, Est. do Rio: Fazenda Penedo, Itatiaia, 1.11, 15.11 et 21.11.1942 (P. Wygodzinsky), series typica, IEEA.

Speciei *C. fulvocincta* (cuius typum ante oculos habeo) valde affinis:

<i>Cosm. fulvocincta</i>	<i>Cosm. wygodzinskyi</i>
Long. corp. 7-8 mm	Long. corp. 6-6.5 mm
Antennis, pedibus, palpis labroque fulvis.	Pedibus et antennis obscure piceis vel nigrescentibus, his basi dilutioribus, palpis fulvis, articulo ultimo piceo.
Pronoto ad latera fortiter, disco tenuiter punctato.	Pronoto solum ad latera (tenuiter) punctato.
Elytrorum intervallo marginali (10°) anguste, apice paulo latius nigricante.	Intervallo hoc a medio apicem versus omnino nigro.
Elytr. striis 2 lateralibus distinctis, stria penultima in parte rubra posita.	Etiam striis lateralibus (ut discalibus) e punctis obsolete compositis.
Vittis discalibus rectis, saepissime rubris.	Vittis discalibus flavis, apicem versus sensim incurvatis.
Intervallo marginali postice opaco.	Intervallo marginali nitido.

Je suis heureux de dédier cette espèce nouvelle à M. le Dr. Petr Wygodzinsky qui m'a généreusement offert ses chasses de *Chrysomeloidea* brésiliens contenant de nombreuses formes très intéressantes.

Genre *Doryphora* Illiger

Sous ce nom générique, les entomologistes ne comprennent pas toujours des espèces appartenant au même genre. Cette incertitude est causée par le génotype: J. Achard (1921) l'a renouvelé (*D. punctatissima* Oliv.) chez le genre *Doryphora* Illig. (= *Megistomela* Chap., Weise, Blackwelder), mais chez le deuxième *Doryphora* Chap., Weise, Blackw. (non Illig.), n'ayant pas respecté le groupe congloméré des genres décrits par Motschoulsky (1860), il a créé un nouveau génotype (*D. aestuans* Lin.). Les diagnoses génériques de Motschoulsky, quoique peu précises, sont restées valables, ayant leurs génotypes. Les "synonymes" de Motschoulsky pourraient être classés comme sousgenres (incl. *Doryphorella* Achard):

Genre *Doryphora* Illiger, 1804; Achard 1921. — Génotype: *D. punctatissima* Oliv.

= *Doryphora* Motsch. 1860. — Génotype: *D. reticulata* Fabr.

= *Megistomela* Chap. 1874. — Génotype: pas nommé.

Genre *Stichotaenia* Motsch. 1860. — Génotype: *D. axillaris* Germ.

= *Doryphora* Chap. 1874, Weise, etc. — Génotype: pas nommé.

= ?*Linostoma* Motsch. 1860. — Génotype: *D. cincta* Germ.

= *Orthodora* Motsch. 1860. — Génotype: *D. aulica* Oliv.

- Subg. *Sphaenosterna* Motsch. 1860. — Génotype: *D. zonata* Germ.
 Subg. *Anthirrostera* Motsch. 1860. — Génotype: *D. irrorata* Stal
 = *Biogramma* Motsch. 1860. — Génotype: *D. figurata* Germ.
 = *Homalodora* Motsch. 1860. — Génotype: *D. undata* Thunb.
 = *Dorysterna* Motsch. 1860. — Génotype: *D. pardalina* Stal
 Subg. *Cardiodora* Motsch. 1860. — Génotype: *D. latispina* Guér.
 Subg. *Metallophora* Motsch. 1860. — Génotype: *D. pyrhoptera* Germ.
 Subg. *Doryprosopa* Motsch. 1860. — Génotype: *D. dejeani* Germ.
 Subg. *Doryphorella* Achard 1921. — Génotype: *D. aestuans* Lin.
 Subg. *Histrionella* Achard 1922. — Génotype: *D. histrio* Oliv.
 Genre *Dorysterna* Guérin, 1855. — Génotype: *D. paradoxa* Achard
 Genre *Trichomela* Chap. 1874. — Génotype: *D. suturella* Guér.

1. *Doryphora reticulata* Fabr.

Brasilia: Rio de Janeiro, D. F., 12.1946 (P. Wygodzinsky),
 B.

Genre *Stichotaenia* Motschoulsky

1. *Stichotaenia notata* Stal

Brasilia, Rio de Janeiro: Corcovado, 4.1933 (Travassos),
 IEEA.

2. *Stichotaenia nigronotata* Stal

Brasilia, Sta. Catarina: Rio Negrinho, 11.1925, (A. Maller),
 IEEA; Est. Paraná: Rio Negro, 12.1923 et 1.1924 (M. Witte),
 IEEA; ibid., 24.3.1925 (coll. d. Franciscanos), IEEA.

3. *Stichotaenia conchita*, n. sp.

Hab. Brasilia (coll. Achard), type, MP.

Long. corp. 8.5 mm.

Speciei *S. habenata* Stal, omnino similis: Nigro-aenea, antennarum articulis 4 basalibus labroque apice flavescentibus, macula parva capitis vertice posita, pronoto ad latera subtus supraque hic antice latius elytris cum epipleuris testaceis, basi et sutura anguste, hac antice paulo latius (stria abbreviata scutellari limitante) nigro-aenea, tarsis obscure piceis, pronoto in parte lutea medio macula parva aenea ornato.

Capite parum nitido, quam pronoto nitidiore, obsolete, vertice summo, clypeo callisque antennalibus pone oculos distincte punctatis, fronte medio sat profunde foveolato; antennis apicem versus paulo incrassatis. Pronoto sericeo-opaco, basi latissimo (3×latiore quam longiore) a basi medium versus leviter, in 1/3 anteriori fortiter rotundatim angustato, disco tenuiter, ad latera multo fortius et sat dense punctato, ante scutellum basi leviter blimpresso. Scutello punctulato. Elytris quam pronoto multo ni-

tidioribus et paulo latioribus, acervato-seriatim punctatis, intervallis angustis, intervallis 2 lateralibus fere aequaliter latis (quo signo species haec facillime a *Stichot. habenata* dignosci potest). Epipleurorum margine distali sicut et apice nigricantibus, quam episternis metasternalibus angustioribus. Processu mesosternali tuberculiformi, brevissimo. Tarsorum articulo unguiculifero fortiter denticulato.

Elytrorum punctatione speciei *S. rixosa* Stal (typus in MP) affinis; capitis et pronoti coloratione, corpore minore, capitis sculptura et tarsorum articulo unguiculifero subtus fortiter denticulato, species haec nova ab ea differt.

4. *Stichotaenia habenata* Stal

Très voisin de *S. biforis* Germ.; il en diffère tantôt très facilement au point de vue de la coloration (pronotum seulement aux côtés d'un fauve testacé), tantôt bien difficilement par les caractères morphologiques externes (taille plus petite, et beaucoup moins brillante, tarses à article 4e beaucoup plus fortement denticulé et plus aigu). La forme de l'organe copulateur du mâle semble être un caractère très important (cf. fig. 6). On connaît quelques variétés:

1. Elytris flavo-testaceis, immaculatis (sutura antice late, postice post medium anguste, epipleuris et margine externo anguste nigro-aeneis). Hab. Brasilia, Est. São Paulo: Eng. Coelho, 12.1920 (A. Richter), typus, IEEA ab. *enuntiata* n. ab.
2. Ut praecedens, sed elytris singulo post medium fascia transversa obliqua, utrinque abbreviata, in maculis 2 vel 3 approximatis reducta, aenea ornatis. Hab. Brasilia, Est. Paraná: Rio Negro, 12.1923 (M. Witte), typus, IEEA; Est. Paraná, 22.3.1925 (coll. d. Franciscanos), IEEA ab. *opinabilis* n. ab.
3. Elytris ut in formis plerumque coloratis speciei *S. biforis* aeneo-ornatis. Brasilia (MP)..... f. *typica*

5. *Stichotaenia biforis* Germar

Cette espèce est très variable de coloration; quelques variétés ont été décrites comme des espèces propres. J'ai vu un matériel abondant chassé par M. J. Mráz aux environs de São Paulo (MP), dans lequel j'ai pu identifier presque toutes les variétés énumérées plus bas.

S. biforis est remarquable par l'épine mésosternale brève, le 4e article des tarses denticulé en dessous, les épipleures moins larges que les épisternes métathoraciques, les élytres très convexes, régulièrement acervato-ponctuées, l'avant-dernier intervalle lisse, très dilaté, intervalles non convexes, le prothorax brillant (ou assez brillant), au milieu finement, vers les côtés

très fortement ponctué, et par les antennes brèves. Long. corp. 7.5-10.5 mm. Organe copulateur du mâle: fig. 7.

Table synoptique des variétés.

- Elytrorum margine laterali semper anguste nigro-aeneo. Antennis testaceis, piceis vel nigro-aeneis. Scutello plus minusve aenescente.
- 1(22) Subtus cum pedibus capiteque testacea, hoc maculis 2 basalibus approximatis nigro-aeneis ornato.
- 2(19) Epipleuris flavis, rarius pone medium macula nigricante ornatis.
- 3(12) Pronoto maculis duabus basalibus parvis, haud aut vix conjunctis, ornato.
- 4(7) Elytrorum maculis discalibus nullis.
- 5(6) Sutura anguste nigro-aenea..... ab. *simplicissima* n. ab.
- 6(5) Sutura antice late, postice anguste nigro-aenea.....
ab. *biforis* Germ. i. sp.
- 7(4) Elytris maculis discalibus ornatis; sutura antice late nigro-aenea.
- 8(9) Elytris fascia abbreviata transversa, subobliqua, post medium posita, nigro-aenea, ornatis..... ab. *brevifasciata* Jacoby
- 9(8) Elytris maculis magnis discalibus ornatis.
- 10(11) Elytris singulo macula discali antica ornatis.. ab. *semistrata* n. ab.
- 11(10) Elytris etiam macula postica instructis..... ab. *perstrata* n. ab.
- 12(3) Pronoto plaga magna basali, antice plus minusve profunde emarginata, instructo.
- 13(14) Elytrorum maculis discalibus nullis; sutura antice late nigro-aenea
ab. *anastomozans* Perty
- 14(13) Elytris disco nigro-maculatis.
- 15(16) Elytris fascia abbreviata transversa pone medium posita nigro-aenea, sutura anguste nigro-aenea..... ab. *sororia* Stal
- 16(15) Elytrorum macula magna discali antica..... Formae non visae
- 17(18) Sutura anguste nigro-aenea..... *anastomozans* var. *B.* Stal
- 18(17) Sutura antice late nigro-aenea..... *anastomozans* var. *A.* Stal
- 19(2) Epipleuris et sutura anguste nigro-aeneis.
- 20(21) Elytris disco immaculatis..... ab. *dubitabilis* Stal
- 21(20) Elytrorum macula apicali praesente. Mihi ignota.....
anastomozans var. *F.* Stal
- 22(1) Subtus cum epipleuris et capite nigro-aenea, hoc vertice macula testacea ornato.
- 23(30) Pedibus flavis.
- 24(25) Pronoto plaga magna basali, antice plus minusve emarginata nigro-aenea instructo. Elytrorum sutura antice late, maculaque discali anteriori nigro-aeneis..... ab. *discifera* Stal
- 25(24) Pronoto nigro-aeneo, antice et ad latera anguste flavo.
- 26(27) Sutura elytrorum antica anguste nigro-aenea. Macula magna discalis antica adest..... ab. *perterrita* n. ab.
- 27(26) Sutura antice late nigro-aenea.
- 28(29) Elytris macula discali antica instructis. (Mendes, à 92 km do Rio de Janeiro, coll. Le Mout, in coll. Achard, MP).....
ab. *compater* Stal
- 29(28) Elytris etiam macula postica instructis (*S. cinxia* Stal).....
ab. *approximata* Stal
- 30(23) Subtus cum epipleuris, pedibus et saepissime etiam antennis nigro-aenea, femoribus nonnumquam pro parte brunnescentibus.
- 31(34) Elytris dorso immaculatis.
- 32(33) Sutura angustissime nigro-aenea (Forma haec in São Paulo frequentissima esse videtur)..... ab. *frita* n. ab.

33(32) Sutura antice late, postice anguste nigro-aenea.....

ab. *intersaepta* n. ab.

34(31) Elytris maculis dorsalibus ornatis.

35(36) Sutura anguste nigro-aenea; solum macula discali antica praesente

ab. *pellecta* n. ab.

36(35) Sutura antice late nigro-aenea.

37(38) Elytris macula discali antica ornatis..... ab. *mansueta* n. ab.

38(37) Elytris etiam macula postica ornatis..... ab. *pollens* n. ab.

La forme des taches élytrales discales est très caractéristique de cette espèce (cf. figs. 8-10), et contribue à l'identifier.

6. *Stichotaenia conviva* Stal

Espèce très voisine de *S. habenata*; elle en diffère secondai-
rement par la présence des petites taches noires sur la moitié
antérieure des élytres. On connaît quelques variétés, dont une
a été décrite par Jacoby comme espèce distincte:

1. Elytris singulo maculis 3 nigro-aeneis ornatis: una humerali, altera
post basin pone scutellum, alia medio pone suturam.....

ab. *6-spilota* Jacoby

2. Ut praecedens, sed elytris etiam macula alia, pone medium posita,
margini externo approximata, ornatis (elytris summum 8-maculatis)

ab. *conviva* Stal, s. str.

3. Ut praecedens, sed maculis duabus anticis elytri singuli in fasciam
obliquam utrinque abbreviatam confluentibus.... ab. *fortuita* n. ab.

4. Praecedenti similis, sed elytris macula communi alia, ante medium
posita, nigro-aenea, ornatis..... ab. *vaticina* n. ab.

Toutes ces variétés ont été capturées par M. Jaro Mráz aux
environs de la ville de São Paulo (MP). Un autre exemplaire
de l'ab. *6-spilota* provient de Ribeirão Pires (Ribeirão Preto?),
Est. São Paulo, 11.1898 (E. Gounelle, coll. Achard, MP).

7. *Stichotaenia bigata* Germ.

Il ressemble beaucoup aux diverses espèces du genre *Des-
mogramma*; il en diffère nettement par son caractère générique
(le mesosternum prolongé en une épine, quoique assez courte).
Je connais les variétés suivantes:

1. Pronoto supra solum angulis anticis testaceis..... f. *typica*

2. Pronoto etiam ad latera anguste testaceo (forma frequentissima)....

ab. *flavovittata* Stal, 1857

3. Ut praecedens, sed elytrorum intervallo 5° pone medium macula flava
parva ornato

ab. *redhibita* n. ab.

Nota: Speciei *S. flavovittata* Stal 1858 nomen *S. fulvo-
vittata*, n. nov. propono.

Stichotaenia pterosticha, n. sp.

Hab. Brasilia, Est. Santa Catarina: São Bento, 1921 (J.
Naderer), series typica, IEEA.

Long. corp. 8.5-9.0 mm.

Nitida, nigro-aenea, labro, palpis, antennis pedibusque rufo-testaceis, femoribus aeneo-maculatis, macula capitis vertice posita, parva, et alia in clypeo, inter antennarum insertionem posita, rufis; pronoti margine subtus cum angulis anticis (supra) brunnescente; elytris rufo-brunneis, sutura late (et nonnumquam etiam margine anguste) obscuriore, pone suturam plus minusve aeneo-reflexo-micantibus, abdominis suturis rufis.

Capite, vertice et clypeo punctulato, fronte laevi, medio foveola profunda, foveolisque aliis minoribus, inter oculos insculptis, instructo, sulcis ocularibus distinctis, punctis aliquot magnis munitis, sulco clypeali transverso tenuissimo. Antennis brevibus, elytrorum basin paulo superantibus, articulis 5 ultimis incrassatis. Pronoto fere $3 \times$ latiore quam longiore, lateribus subparallelis, in $1/3$ anteriori valde rotundatim angustatis, angulis anticis acutis, mucronatis; disco fere laevi, ad latera plus minusve inaequali et profunde punctato-foveolato. Scutello aeneo, laevi, antice in medio prominulo. Elytris sat regulariter in seriebus 10 punctatis, punctis sat sparsis, magnitudine diversis quarum plurimis aspectu foveiformi, intervallis fere aequilatis, laevibus, inter punctos densius positos undulatis, planis, interv. penultimo a medio apicem versus convexo. Epipleuris rufis, quam episternis metasternalibus paulo angustioribus. Processu mesosternali brevi, tuberculiformi, subrecte adpresso, hirsutulo. Abdominis segmento 1° quam 2° paulo latiore. Articulo tarsorum unguiculifero subtus obsolete denticulato.

Il ressemble un peu au *S. signifrons* Stal, et au *S. semiviridis* Jacoby; il en diffère collectivement par la ponctuation extrêmement profonde et disposée en séries longitudinales simples (pas dedoublées).

Stichotaenia filia, n. sp.

Hab. Brasilia, Est. Santa Catarina: Rio Negrinho, 1.1926 (A. Maller), typus, IEEA; Brasilia, MP.

Long. corp. 9.5-10.0 mm.

Praecedenti quam maxime similis; concolor, macula rufa clypei nulla, elytris unicoloribus (supra haud brunneo-metallica), abdomine (segmento ultimo rufescente excepto) omnino nigro-aeneo.

Capite distinctius punctato, fronte fere laevi, sulco longitudinali medio, sat tenui cum sulco transverso clypei, profunde insculpto, coeunte, sulcis ocularibus distinctis, foveolis inter oculos parum profundis. Pronoto pone medium latissimo, lateri-

bus rotundatis, angulis anticis rotundatis, haud mucronatis, punctis etiam disco (quamquam paucis) praesentibus. Scutello antice haud producto. Elytrorum punctis subaequalibus (stria scutellari abbreviata excepta, e punctis minutis composita), magnis, foveiformibus, epipleuris quam episternis metasternalibus paulo latioribus, processu mesosternali longiore, cum metasterno fere aequaliter longo, obtuso, leviter conico, sed haud compresso.

Ressemble extrêmement au précédent; il s'en distingue très facilement par l'épine mésosternale presque 5 fois aussi longue et par les points fossuliformes des élytres subégaux.

10. *Stichotaenia semiviridis* Jacoby

Décrit de Costa Rica. J'ai vu une série de 30 exx. provenant des environs de la ville de São Paulo (J. Mráz, MP) qui s'accordent exactement avec la description originale. L'indication de la patrie "Costa Rica" est probablement erronée. Un peu plus rarement, la couleur d'un vert éclatant, est remplacée par un bleu très intense: — ab. *semicyanea* n. ab.

11. *Stichotaenia 4-signata* Germ.

Une des espèces les plus communes du genre, distribuée de l'Argentine jusqu'au Nord du Brésil et à Bolivie. Un exemplaire (IEEA) provenant de S. Paulo (Jardim Aclimação, 6.5.1923, Melzer leg.) était accompagné d'une description très intéressante, dans laquelle le chasseur dépeint l'aspect de l'espèce vivante:

"Blass graugelblich, unten mit leichtem Anflug ins gruenliche, die 6 Fuehlrglieder der Spitze, die Augen, 4 Flecken auf dem Kopfe, 4 auf dem Halsschilde schwarz, die Decken mit Ausnahme des Saumes rings herum jedoch nur recht schmal, von der Farbe des Koerpers: gruen, ein schmales, nach innen undeutlich begrenztes Band von Schulterecke bis nahe der Spitze hellgelb".

L'insecte préparé est d'un ton testacé pâle passant plus au moins au brunâtre. La description originale indique seulement deux taches noires sur la tête. En réalité, il en existe 4, mais les deux postérieurs sont visibles seulement après une certaine inclinaison de la tête de l'insecte ramolli.

Genre *Dorysterna* Guérin

Ce genre diffère des *Stichotaenia* par les 5 ou 6 derniers articles antennaires très dilatés et plus au moins transversaux.

Les espèces sont, en général, facilement reconnaissables par le système de coloration:

- 1(18) Elytris nigro-aeneis vel metallicis, maculis vel vittis flavis ornatis.
- 2(3) Pronoto omnino nigro, elytris punctato-sulcatis, singulo macula humerali fascia transversa pone medium et macula apicali flavo-ornatis. Long. 12-13 mm. Hab. Ecuador (*D. bourcierii* Guér.; *D. monticola* Weise; *Euryceraea paradoxa* Achard).....
D. paradoxa Achard
- 3(2) Pronoto ex parte aut ex toto flavo.
- 4(5) Pronoto macula discali magna, nigro-aenea ornato, elytris vitta intramarginali flavescens testacea ornatis. Long. 9.5-10 mm. Patria ignota *D. clavicornis* Stal
- 5(4) Pronoto nigro (vel nigro-aeneo), ad latera flavo ornato aut omnino flavo.
- 6(9) Elytrorum sutura, limbo laterali et limbo basali testaceis.
- 7(8) Pronoto nigro-aeneo, ad latera anguste flavo-limbato. Long. 10 mm. Brasilia *D. corynomaloides* Stal
- 8(7) Pronoto omnino flavo. Long. 9.5-10 mm..... *D. cruentata* Baly
- 9(6) Elytris aliter coloratis.
- 10(13) Elytris etiam apice aeneo-metallicis.
- 11(12) Pronoto toto testaceo, elytrorum lateribus medio flavescens. Long. 9-10 mm. Brasilia..... *D. tibialis* Baly
- 12(11) Pronoto nigro, ad latera testaceo, elytris aeneis, limbo laterali medio maculaque humerali flavis. Perú, Ecuador... *D. festiva* Baly
- 13(10) Elytris apice flavis.
- 14(15) Pronoto flavo, disco vittis duabus indistinctis obscurioribus instructo, elytris singulo maculis 2 pone medium, transversim positus (et macula apicali) flavoornatis. Long. 9.5 mm. Brasilia.....
D. hereditaria n. sp.
- 15(14) Pronoto nigro, ad latera testaceo limbato.
- 16(17) Pronoto antice in medio macula parva testacea notato. Elytris singulo macula posthumerali, maculis duabus pone medium, transversim positus maculaque anteapicali flavis ornatis. Long. 9 mm. Brasilia *D. pretiosa* Baly
- 17(16) Elytris solum macula humerali (et apice) flavoornatis. Rarius etiam macula iuxtamarginali medio posita flava praesente.....
D. eugenia sp. geogr.
a. Long. 8-9 mm. Elytris sat tenuiter punctatis, punctis apicem versus obsolescentibus. Hab. Perú (forma montana).....
subsp. *eugenia* Stal
1. Elytris violaceis, macula humerali et apice flavis.....
f. *typica*
2. Ut praecedens, sed elytris macula parva pone medium in intervallo penultimo posita flavoornatis
ab. *spilota* Achard
3. Ut praecedens, sed elytris obscure coeruleis
ab. *isospilota* n. ab.
b. Long. 10-11 mm. Elytris fortiter punctatis, punctis apice distinctis. Amazonas, Perú..... subsp. *subfestiva* Achard
- 18(1) Elytris flavo-testaceis, nigro-aeneo-ornatis.
- 19(20) Pronoto cum scutello nigro-aeneo, unicolore; elytrorum sutura aenea. 10 mm. Brasilia..... *D. atricollis* Stal
- 20(19) Pronoto ex toto vel ex parte flavo-testaceo.
- 21(22) Pronoto nigro-aeneo, ad latera testaceo. Elytris flavis, sutura (et scutello) limbo laterali (apicem versus abbreviata) et in singulo

- maculis 2 magnis, una ante, altera post medium posita, nigro-aeneis ornatis. Long. 9 mm. Brasilia? (*D. ensem* Blackw. in Catal.) *D. eusema* Stal
- 22(21) Pronoto aliter colorato.
- 23(34) Pronoto et capite maculis quadrinis parvis, nigris, transversim positis instructis.
- 24(25) Elytris omnino flavo-testaceis; scutello nigro. 8 mm. Patria ignota
D. deyrollei Stal
- 25(24) Elytris maculatis; scutello saepissime flavo-testaceo.
- 26(27) Elytris solum pone medium nigro-maculatis. Long. 9-9.5 mm. Brasilia *D. dorsosignata* Stal
1. Elytris maculis 4, in seriem transversam communem, ante medium positam, ornatis f. *typica*
2. Ut praecedens, sed elytris macula altera, post medium sub macula antica externa posita, ornatis. ab. *6-punctata* Achard
- 27(26) Elytris flavotestaceis aut brunneis, maculis numerosis in intervallis alternatis dispositis (ut int. singulo maculis 3-4), plus minusve transversim confluentibus, nigro-aeneo-ornatis.
- 28(33) Corpore elongato.
- 29(32) Pronoto sat dense punctato. Corpore majore (8-10 mm).
- 30(31) Supra nitida, elytris tenuiter punctatis, maculis distinctissimis, nullo modo confluentibus, pedibus flavis. Brasilia.
D. intermaculata Stal
- 31(30) Elytris opacis, profunde punctatis, intervallis leviter convexis, maculis minus pronuntiatis, pro parte transversim confluentibus, tarsis et genibus aenescentibus. Brasilia. *D. guttifera* n. sp.
- 32(29) Corpore minore, nitido (elytris solum apice opacioribus), valde elongato, pronoto punctis perpaucis (10-20) instructo, elytris tenuiter punctatis, punctis in parte apicali deficientibus, pedibus flavis. Long. 7.5-8 mm. Brasilia. *D. salvatori* n. sp.
- 33(28) Corpore minore (8-8.5 mm), breviter ovato, nitido, maculis hic illic confluentibus, tarsis et genibus aenescentibus. Elytris tenuiter punctatis, punctis apice distinctis. Brasilia.
D. riopardensis n. sp.
- 34(23) Supra omnino testacea, elytris maculis numerosis pallide flavis ornatis. Long. corp. 12 mm. Brasilia. *D. bahiensis* Jacoby

1. *Dorysterna cruentata* Baly

Brasilia, Est. Espírito Santo: Guandú, 3. et 28.12.1920 (E. Hoffmann), IEEA..

2. *Dorysterna hereditaria*, n. sp.

Hab. Brasilia, Est. Amazonas: São Paulo de Olivença, 8.1925 (H. J. Boy), typus 1 ♀, IEEA.

Long. corp. 9.5 mm.

Rufo-testacea, metasterno ad latera et pronoti vittis duabus discalibus longitudinalibus obsoletis piceis, antennarum articulis 4 ultimis nigris, labro luteo. Elytris obscure violaceis, singulo maculis duabus medio transversim positis sicut et apice flavescenscentibus, epipleuris intus rufotestaceis. Corpore brevissime ovali, valde convexo, opaculo, elytris nitidis.

Capite sparse et tenuiter punctato, clypeo a fronte sulco distincte separato, vertice linea longitudinali media brevi instructo, sulcís ocularibus bene insculptis. Antennis $1/4$ elytrorum per longitudinem attingentibus, articulis 2°, 5° et 6° subaequalibus, art. 3° quam 2° duplo longiore, 4° quam 5° paulo longiore, art. 7° parum, art. reliquis fortiter dilatato-compressis, art. 9° et 10° transversis, art. 10° latitudine longitudini articuli primi fere aequante. Palporum articulo ultimo valde transverso, apice truncato. Pronoto ante medium latissimo, valde transverso, $4\times$ latiore quam longiore, lateribus ante angulos posticos sinuatis, retrorsum parum et subrecte, antrorsum fortiter et late rotundatim angustatis, angulis leviter mucronatis, ang. anticis acutis, prominentibus. Disco quam lateribus nitidior, punctatione irregulari, haud densa, quam capite duplo magis pronuntiata. Scutello (flavotestaceo) triangulari, quam elytris paulo opacior. His basi quam pronoto paulo latioribus, visu sublaterali post humeros latissimis, medium versus sensim sinuatis, multo fortius quam pronoto, haud dense punctatis, punctis in seriebus longitudinalibus irregularibus coordinatis, intervallis 2 lateralibus latis, (punctorum serie irregulariter reduplicata inter se separatis), distinctis, callo humerali laevi. Subtus sat nitida, prosterno apice emarginato, processu mesosternali complanato, supra fere rectilineari, subtus concavo, obtusiusculo, quam metasterno fere duplo brevior; episternis metasternalibus fortiter, abdomine sparse et tenuiter punctato, epipleuris antice quam episternis metasternalibus vix latioribus. Tibiarum sulco externo brevissimo.

Voisin de *D. eugenia* Stal; il en diffère par le système de coloration, par la forme du prothorax, les élytres brillants et par l'épine mésosternale plus longue. *D. pretiosa* Baly en diffère par la coloration et par les élytres ponctués beaucoup plus régulièrement.

3. *Dorysterna intermaculata* Stal

Hab. Brasilia (3 specimina "ex typis" in coll. Achard, MP).

Long. corp. 8-10 mm.

Elongata, minus convexa, corporis apice late (visu laterali), distincte declivi, nitidula, pronoto, capite et scutello paulo opacioribus (microsculptura sub lente $20\times$ visibili); elytrorum microsculptura in $1/3$ basali sub lente $60\times$ vix visibili. Flavotestacea, mandibulis apice summo, antennis (articulo 1° fere ex toto, art. 2°-5° plus minusve flavescentibus), capitis maculis 4: duabus fronte medio transversaliter positis, duabus elongatis vertice sum-

mo eodem modo positis, pronoti margine laterali extremo atque maculis 4 parvis disco transversaliter positis tibiarumque macula externa, saepe obsoleta, nigricantibus vel plus minusve aeneo-tinctis; elytrorum sutura angustissime sicut et limbo laterali extremo maculisque elongatis liberis, viridiaeneis, in intervallis alternatis modo sequenti positis: interv. 2° maculis 4, interv. 4° maculis 5, interv. 6° maculis 5, interv. 8° maculis 4 et interv. 10° maculis 2 vel 3; maculis his in fasciis transversis tribus (post-basali, ante- et postmediana) regularibus coordinatis fasciaeque 4^a regionis anteapicalis irregulari. Segmento ventrali ultimo et (in specimine unico) etiam penultimo nigro-aeneo-maculatis.

Capite sparse et tenuiter punctato, clypeo sulco tenuissime a fronte separato, sulcis ocularibus distinctis. Antennis elytrorum basin attingentibus, articulo 3° omnium longissimo, art. 5 ultimis valde dilatatis et compressis, art. 10° omnium latissimo quam primo plus quam $2 \times$ latiore. Pronoto ante medium latissimo, fere $3 \times$ latiore quam longiore, lateribus retrorsum vix angustatis, ante basin distincte sinuatis, angulis anticis late rotundatis, haud mucronatis, prominentibus, angulis posticis breviter mucronatis; disco circa maculas nigro-aeneas punctis aliquot magnis instructo, ceterum sparse microscopice punctulato. Scutello triangulari, microscopice punctulato, haud longiore quam latiore. Elytris nitidis, apicem versus opacioribus, sat tenuiter, regulariter seriato-punctatis, punctis distantibus, apicem versus sensim diminutis. Subtus fere laevis, epipleuris quam episternis metasternalibus paulo latioribus, processu meso-sternali quam metasterno duplo brevior.

4. *Dorysterna guttifera*, n. sp.

Hab. Brasilia, Est. São Paulo: I. Queimada Grande, 11.1920, type, IEEA.

Long. corp. 9.5 mm.

A praecedenti signis essentialibus sequentibus differt:

Obscurior, genubus, tibiis medio et tarsis nigro-aeneis, pronoto etiam margine postico nigricante, scutello pro magna parte aenescente, elytrorum maculis pro parte transversim confluentibus. Capite densius et fortius punctato, pronoti lateribus ante basin nullo modo sinuatis, fere parallelis, antice abrupte rotundatis, elytris quam pronoto multo opacioribus, fortiter et dense seriato-punctatis.

5. *Dorysterna salvatori*, n. sp.

Hab. Brasilia, Est. Minas Gerais: Diamantina (Gounelle, coll. Achard), typus, MP; Brasilia (coll. Salvator), MP.

Long. corp. 7.5-8 mm.

Corpore minore, magis elongato, capite et pronoto sparse, illo tenuissime, hoc paulo fortius punctato, pronoti lateribus post medium rectis, subparallelis, elytris tenuiter et sparse punctato-seriatis, punctis apicem versus omnino obsoletis et processu mesosternali valde elongato, quam metasterno solum paulo brevior, species haec nova a *D. intermaculata* Stal, discrepat.

Les deux exemplaires capturés par Salvator proviennent de l'expédition de la fregate "Novara".

6. *Dorysterna riopardensis*, n. sp.

Hab. Brasilia, Est. São Paulo: Vale do Rio Pardo, 12.1898 (E. Gounelle, coll. Achard), typus et cotypus; env. de São Paulo (J. Mráz), paratypus, MP.

Long. corp. 8-8.5 mm.

A praecedentibus corpore breviter ovali discrepat, coloratione speciei *D. guttifera* similis; a specie praecedente elytris postice distincte punctatis, epipleuris quam episternis metasternalibus angustioribus, processu mesosternali quam metasterno duplo brevior differt. Scutello et suturis sterni aenescentibus.

Genre *DeuteroCampta* Chevrolat

1. *DeuteroCampta citrina*, n. sp.

Hab. Brasilia, Est. do Rio: Angra dos Reis, Jussara, 9-1935 (Dario Mendes), typus, IEEA; ibid., 11.1934 (L. Travassos), cotype, IEEA.

Long. corp. 12 mm.

Nigra, antennis et palpis rufo-testaceis (horum articulo ultimo infuscato), prostethio late, pronoti angulo antico latissime stramineis, capitis macula vertice rufa, elytris citricoloribus, margine basali angustissime, sutura sat late, fascia transversa media communi lata (specierum omnium similiter coloratarum latissima) margineque laterali inter fasciam hanc et apicem anguste, nigris, epipleuris nigris, antice post basin flavomaculatis.

Capite sparse, vertice obsolete, clypeo fortius punctato, antennis apice incrassatis, articulis apicalibus elongatis. Pronoto basi latissimo, microscopice punctulato, in parte nigra punctis magnis nonnullis insculptis. Elytris parum regulariter seriato-

punctatis, punctis in plaga lutea postmediali tenuibus, intervallis microscopice punctulatis. Epipleuris ante medium distincte dilatatis. Metasterno fortiter, abdomine tenuiter segmento ultimo densius punctato.

Voisin de *D. achardi* Bechyné (1944); il en diffère, ainsi que de toutes les autres espèces du genre, par son système de coloration. Les épipleures élytraux, un peu dilatés avant le milieu, l'éloignent de ses congénères.

2. *Deuterocampta stauoptera* Wied. f. *typica*

Brasilia: Rio de Janeiro, 7.1927 (Dario Mendes); ibid. 19.10.1933 (L. Tato), IEEA; Corcovado, 28.1.1938 (D. Mendes); ibid. 7.9. et 21.10.1946 (P. Wygodzinsky), IEEA; Jardim Botânico, 6.1933 (Montera), IEEA; Rio, Tijuca, 9.1932 (R. Vosgien), IEEA.

2a. *Deuterocampta stauoptera* ab. *picturata* Bechyné

Rio de Janeiro, Paineiras, 5.1925 (M. Mello), IEEA; Corcovado, 12.8 et 7.9.1945 (P. Wygodzinsky), IEEA.

Summary.

The author gives a key to the tribes of one of the groups of the *Chrysomelinae*; the new tribe *Barymelini* (type *Barymela* Weise, from Madagascar) is introduced. The tribe *Zygogrammini* is considered as artificial. There are given distributional and taxonomical notes on numerous species of the genera *Zygogramma* Chevrolat, *Cosmogramma* Erichson, *Doryphora* Illiger, *Stichotaenia* Motschoulsky, *Dorysterna* Guérin and *Deuterocampta* Chevrolat; several new species are also described. Various keys for species and varieties facilitate the determination of these insects.

Index Bibliographicus.

- Achard, J., Ann. Soc. Ent. Belg., vol. 61, 1921, p. 196 (Monographie du genre *Doryphora* Illig. [nec Chap.]).
 Bechyné, J., Sborník ent. odd. N. Mus. Praha, vols. 21-22, 1943-1944 (1944), p. 61 (Monographie du genre *Deuterocampta*). L. c., p. 309 (Notes sur le genre *Zygogramma*).
 Blackwelder, R. E., Bull. U. S. Nat. Museum, 185, 1946 (Catal. Coleopt. Latin America, part IV).
 Chen, S. H., Not. Ent. Chin. Mus. Heude, vol. 3, 1936, p. 64 (Catal. de Chrysomelinae de la Chine, etc.).
 Motschoulsky, V., Schrenk's Reise Amurb., vol. 2, 1860, p. 183 (Tableau synoptique des genres de Chrysomelidae).
 Weise, J., D. Ent. Ztschr. 1915, p. 435 (Tribus de Chrysomelidae [tableau synoptique]).
 Junk-Schenkling, Col. Catal. 68, 1916 (Bibliographie jusqu'à 1916).

Notas Sobre Algumas Abelhas de Tacanas, Tucumán, Argentina. (Hymenopt. Apoidea).

Pelo Pe. J. S. Moure, C. M. F., do Museu Paranaense e Universidade do Paraná, Curitiba.

Recebi de D. José M. Arnau, Pbro, um pequeno lote de abelhas, caçado em Tacanas, San Pedro de Colalao, Departamento de Trancas, Tucumán (R. A.). Como se encontram novidades zoogeográficas e sistemáticas muito interessantes, dou abaixo uma notícia das mesmas, expressando todo meu reconhecimento a D. José M. Arnau, que me possibilitou o estudo do material por ele coletado.

Fam. Colletidae

Subf. Colletinae

1. *Colletes petropolitanus* D. T., 1896.

Um exemplar macho. Em tudo semelhante aos exemplares brasileiros, apenas as asas um pouco mais hialinas. Não figura nas listas de Joergensen (1912), nem na de Schrottky (1913) para a Argentina. Este último o assinala para o Paraguai.

Subf. Lonchopriinae

2. *Nomiocolletes jenseni* (Friese, 1906).

Dois exemplares machos.

A meu ver é *Nomiocolletes* um bom gênero que se separa facilmente de *Lonchopria*, em que o incluiu Ducke, pelos seguintes caracteres:

Com faixas amarelas, na quitina, na margem apical dos tergitos; lóbulo jugal-das asas posteriores tão longo como a célula cubital; a terceira célula submarginal quase o duplo da segunda; a primeira célula medial não pedunculada, isto é, a bifurcação entre *Cu* e *M* coincidindo com a origem de *cu-v*; o vértice bastante elevado atrás dos ocelos. Nas fêmeas o escapo atinge o nível do ocelo médio; a escopa muito densa; o esporão com dentes curtos e grossos, pouco numerosos. Nos machos as mandíbulas bidentadas no ápice e com o bordo inferior simples; tíbias e fêmures mais ou menos profundamente modificados e deformados.

Biglossidia, n. gen.

Glossa bifida, curta; as paraglossas quase do mesmo comprimento; os palpos labiais curtos, de 4 artículos obcônicos, o 1.º e o 4.º um pouco mais longos; o prementum moderadamente longo; as maxilas com a parte apical da gálea sub-bilobada, os palpos maxilares curtos, de 6 artículos obcônicos, semelhantes aos labiais; as mandíbulas do macho e da fêmea simplesmente

bidentadas, sendo que na fêmea o dente interno está muito próximo do ápice; o labro muito mais largo que longo; os lados da sutura epistomática em ângulo aproximado de 45° com a horizontal; suturas subantenas divergindo para cima e mais longas que o diâmetro dos alvéolos antenais; órbitas internas em linha um pouco côncava no terço superior, convergentes para baixo, um pouco menos afastadas entre si superiormente do que o comprimento do olho; a área ocelocular um pouco maior que dois diâmetros do ocelo, a ocelocipital um pouco menor; os ocelos posteriores separados do anterior por um pouco menos do que o próprio diâmetro; o escapo atingindo o nível do ocelo anterior; o pedicelo subgloboso, mais curto que o próprio diâmetro; o flagelo na fêmea subcilíndrico, com o 1.º artigo fracamente obcônico, um pouco maior que o 3.º, este igualando o próprio diâmetro e um pouco maior que o 2.º, o 4.º e seguintes tão longos como largos, o último mais longo; no macho o flagelo subcilíndrico, com os artigos subiguais, um pouco mais longos que 1,5 vezes o próprio diâmetro, os últimos ainda um pouco mais longos. Os notaulos indicados por uma depressão, principalmente nos machos; a sutura pré-episternal bastante forte e com trabéculas, a que limita a área propodeal um pouquinho mais fraca. Asas posteriores com o lóbulo jugal um pouco mais curto que a cubital; nas anteriores o pterostigma moderado, a célula marginal não apendiculada, as submarginais em número de 3, a segunda pentagonal, quase tão grande como a terceira, recebendo o 1.º *m-cu* quase no meio, e o 2.º *m-cu* quase no ápice da terceira célula submarginal; a primeira célula medial subpedunculada; membrana alar pilosa. Os basitarsos do segundo e terceiro par de pernas, na fêmea, um pouco mais curtos que as respectivas tíbias e das pernas posteriores apenas com cerdas curtas na face externa, e claramente estreitado para o ápice; a escopa tibial muito densa, com pêlos plumosos densos, não deixando ver os contornos da tíbia; esporão médio simples, curto; o esporão interno posterior pectinado, com os dentes largos até o meio e depois subitamente estreitados, como que articulados; a placa basitibial pilosa; nos machos as pernas posteriores um pouco engrossadas e a placa basitibial apenas indicada por um rebordo. Metasoma metálico; o 1.º tergito um pouco deprimido na base; depressões marginais bastante nítidas lateralmente, sem constrictões basais; placa pigidial presente só na fêmea, grande, subtruncada, vestigialmente sulcada. Nos machos os tergitos e esternitos visíveis não apresentam modificações especiais, apenas

o último esternito (6.º) um pouco prolongado apicalmente em lóbulo arredondado; o 7.º altamente complicado, com a parte basal reduzida a dois estreitos braços em V e a apical voltada para cima e para trás, abrindo-se para cada lado em dois ramos, um superior, estreito, mais esclerosado, piloso na parte postero-apical, outro inferior, largo, foliáceo e com pêlos mais desenvolvidos em forma de franja no bordo infero-anterior; o 8.º com uma forte projeção apical, alargada para o ápice e aí trilobada, densamente pilosa na parte inferior; a armadura genital alongada, bastante recurvada para baixo, com os gonóstilos indistintamente separados dos gonocoxitos, pouco pilosos.

Genótipo: *Biglossa chalybaea* Friese, 1906.

Separa-se facilmente este gênero dos mais próximos, pelo seguinte contraste de caracteres:

de *Biglossa* (genótipo *thoracica*) pelo abdomen metálico, lóbulo jugal das asas posteriores mais curto que a célula cubital; nas fêmeas o escapo sem sobrepassar os ocelos posteriores, a face larga e não deprimida nas áreas paroculares; nos machos pelas mandíbulas bidentadas, que em *B. thoracica* são tridentadas, etc.;

de *Lonchopria* (diagenótipo *zonalis*) pelo abdomen metálico, primeira célula medial não pedunculada, escapo sem sobrepassar os ocelos posteriores; nos machos pelas mandíbulas sem projeção inferior, etc.;

de *Nomiocolletes* pela falta de faixas amarelas na quitina do bordo apical dos tergitos, etc.

3. *Biglossidia chalybaea* (Friese, 1906) n. comb.

Biglossa chalybaea Friese, 1906, Ztschr. Hymen. Dipt., 66 378, 5. — Schrottky, 1907, An. Cient. Paraguayos, 7: 20. — Friese, 1908, Flora og Fauna, 10: 16.
Biglossa armata Friese, 1906, Ztschr. Hym. Dipt., 6: 379, 8. — Schrottky, 1907, An. Cient. Paraguayos, 7: 20. — Friese, 1908, Flora og Fauna, 10: 17, 14. — Joergensen, 1909, Deutsch. Entom. Ztschr., p. 56.
Lonchopria armata Ducke, 1910, Rev. d'Entom., Caen, 28: 81. — Joergensen, 1912, Zool. Jahrb. Abt. Syst., 32: 105, 27. — Ducke, 1912, Zool. Jahrb. Abt. Syst., 34: 80. — Joergensen, 1912, An. Mus. Nac. B. Aires, 22: 302, 306. — Schrottky, 1913, An. Soc. Cl. Arg., 75: 237.
Lonchopria chalybaea Schrottky, 1909, An. Soc. Cl. Arg., 68: 252, 47. — Ducke, 1912, Zool. Jahrb. Abt. Syst., 34: 80. — Schrottky, 1913, An. Soc. Cl. Arg., 75: 237. — Cockerell, 1914, Journ. N. Y. Entom. Soc., 22: 328. — Cockerell, 1917, Ann. Mag. Nat. Hist., (8) 19: 480.

Três exemplares machos.

Aceito a opinião de Cockerell, 1917, firmada na autoridade dos autores citados pelo mesmo. Aliás o mesmo Friese, em 1908, reconhece a extraordinária semelhança entre ambas as fêmeas, apontando como distintivos, caracteres de somenos importância. De acordo com exemplares existentes no Departamento de Zoologia de São Paulo, n. 100137 (fêmea) e 100138 (macho), procedentes de Mendoza e determinados por Friese, vê-se que são muito pequenas as diferenças entre a diagnose de *B. chalybaea* e a fêmea atribuída à *B. armata*: não se notam, entretanto, as faixas pilosas vestigiais a que se refere

Friese. O nome *chalybaea* tem prioridade de numeração e página.

Dadas as notáveis diferenças que separam esta espécie e mais algumas atribuídas à *Lonchopria* ou à *Biglossa*, julguei preferível a ereção de um novo gênero para as mesmas.

4. *Biglossidia aenea* (Friese, 1906) n. comb.

Biglossa aenea Friese, 1906, Ztschr. Hym. Dipt., 6: 379, 7. — Schrottky, 1907, An. Cient. Paraguayos, 7: 20. — Friese, 1908, Flora og Fauna, 10: 17.
Lonchopria aenea Ducke, 1912, Zool. Jahrb. Abt. Syst., 34: 80. — Schrottky, 1913, An. Soc. Ci. Arg., 75: 237. — Cockerell, 1917, Ann. Mag. Nat. Hist., (8) 19: 480.

Um macho e uma fêmea. Deixa-me uma pequena dúvida apenas a indicação de “Tibien aussen am Ende bedornt”, e por outra parte o exagero da afirmação “Metatarsus fast von Tibienbreite, Aussenrand stark gebogen”.

A pilosidade dos lados do tórax, particularmente junto aos lóbulos pronotais, no propódeo e no 1.º tergito, amarelo-suja, no dorso do tórax grisalho-escura; na face, genas, esterno, pernas e ventre branca. Os tergitos abdominais apresentam faixas brancas vestigiais, muito estreitas, nas margens apicais de 3-6. O colorido do abdomen é antes verde-azul. A formação do clipeo difere inteiramente de *B. chalybaea*, sendo na sua metade apical inchado e liso, e aí mais ou menos coberto pela longa pilosidade da metade superior; as pernas também são mais simples, não havendo engrossamento dos fêmures e tíbias, nem estas alargadas no ápice.

Fêmea (indescrita). — Cabeça, tórax e pernas pretos, abdomen com os tergitos de um verde-oliva metálico; flagelo um pouco ferrugíneo-pardo inferiormente a partir do 3.º artículo, mais intensamente ferrugíneo para o ápice; tégulas, nervuras e pterostigma claro-ferrugíneos, a membrana alar também lavada de ferrugíneo, a nervura *R* um pouco mais parda.

Pilosidade: esbranquiçada na face, parte inferior das genas, esterno, face anterior dos fêmures e antero-inferior das tíbias, margem apical e lados dos esternitos; nigro-fusca no vértice, parte superior das genas, dorso e lados do tórax, pernas (inclusive os basitarsos, os anteriores ligeiramente preto-ferrugíneos), disco dos esternitos e dos tergitos 3-6; faixas vestigiais na base e ápice dos tergitos 2-5 de uma pruinosidade creme-claro, formada de curtos pêlos esquamiformes, eretos na base, e detoados, algo mais longos, na margem apical.

Pontuação: densa, de tamanho médio, algo coalescente na fronte, mais bem formada nas áreas paroculares inferiormente;

um pouco mais grossa no disco deprimido do clipeo, de resto bastante liso, bem como a área supraclipeal; mais fina e esparsa nas áreas oceloculares, com os intervalos chagrinados microscòpicamente; regularmente densa no mesonoto, com os intervalos mate-reticulados igualando o diâmetro dos pontos, porém no disco posterior com dois grandes espaços lisos, brilhantes; no escutelo igualmente com dois espaços lisos; nas meso- e metapleuras mais densa que no mesonoto, nas propodeais bastante mais esparsa, com os intervalos mate-reticulados maiores que os pontos; área basal do propódeo mate-chagrinada, sem pontos; no 1.º tergito mais fina e mais esparsa que nas pleuras propodeais, nos seguintes mais densa e mais fina, com os intervalos sempre microscòpicamente reticulados.

Estrutura: Cabeça mais larga que longa, com as órbitas internas superiormente curvadas para dentro; sutura subantenal tão longa como o diâmetro do alvéolo (em *B. chalybaea* igualando 1,5 vezes o diâmetro do alvéolo); articulo basal do flagelo quase igual a 2+3; o esporão interno das tíbias posteriores exatamente como no genótipo, isto é, pectinado e os dentes com a metade basal larga e a apical súbitamente estreitada a partir do meio; placa basitibial pilosa.

Dimensões: Comprimento total aproximado 11,5 mm, da asa anterior 7,5 mm; largura da cabeça 3,2 mm, do abdomen 3,2 mm.

Habitat: Tacanas, Tucumán, R. A., 1-1947, J. M. Arnau leg. O holótipo, macho, foi descrito de Salta.

Tipo: O alótipo fêmea na minha coleção.

Subf. *Diphaglossinae*

5. *Ptiloglossa psednozona* Moure, 1947.

Um exemplar macho. Assemelhando-se inteiramente ao tipo, menos na pilosidade dos fêmures que é preta.

6. *Zikanapis megalopta*, n. sp.

Um exemplar macho, parátipo.

Fêmea. — Cor preto-bruna, com a margem dos tergitos, clipeo, labro e as pernas, parcialmente, mais claras, o clipeo quase méleo; o flagelo a partir do 3.º articulo mais claro; tégulas claro-ferrugíneas, as nervuras um pouco mais pardacentas, particularmente o Radius; a membrana alar levemente ferruginosa, com o colorido um pouco mais carregado na célula marginal junto ao pterostigma.

Pilosidade: intensamente fulva na parte dorsal do tórax, mais pálida nas genas, pleuras, 1.º tergito, esterno e esternitos; fusca na face e vértice, fulvo-fusca nos tergitos, passando a fulvescente para os lados; pálida nos fêmures e bordo anterior das tíbias trazeiras, de resto preta ou fusca; fulva nas pernas anteriores, fulvo-ferrugínea na face interno-anterior dos basitarsos médios e dianteiros.

Pontuação: pouco evidente devido a pilosidade; no clipeo bem nítida, muito esparsa no meio inferiormente e bastante densa nos lados superiormente; muito fina nos tergitos, que são pouco brilhantes no disco; a área basal do propódeo microscópicamente reticulada, medianamente brilhante.

Estrutura: Difere do genótipo principalmente no seguinte: ocelos grandes, mais próximos entre si que o próprio diâmetro, e a menos de meio diâmetro das órbitas, que superiormente estão mais voltadas para dentro; o escapo um pouco mais longo; a pilosidade dos tergitos um pouco menos desenvolvida.

Dimensões: Comprimento total aproximado 18 mm, da asa anterior 13,5 mm; largura da cabeça 5 mm, do abdomen 6,8 mm.

M a c h o. — Muito parecido com a fêmea na cor, pilosidade e pontuação. A face mais estreita, os olhos grandes, com as órbitas internas convergentes para cima, os ocelos um pouco menos que na fêmea, porém mesmo assim ainda maiores que no genótipo. 7.º esternito bastante mais simples que em *Ptiloglossa*, apenas com dois ramos apicais, próximos do meio, voltados para trás e depois cada um para seu lado, com um pequeno dente no bordo interno, e sem expansão apical; 8.º com a parte apical em ponta longa, muito longa e fortemente quitinizada, com o ápice em ponta. Armadura genital assemelhando-se a de *Ptiloglossa*, porém os gonocoxitos pouco pilosos no ápice, as volselas um pouco menos desenvolvidas.

Dimensões: Comprimento total aproximado 16 mm, da asa anterior 13,5 mm; largura da cabeça 4,5 mm, do abdomen 6 mm.

Habitat: Itatiaia, R. J., Brasil, I-II-V-XII-1927-1929-1932-1932 e 1935, W. e J. F. Zikán leg.; Tacanas, Tuc., R. Arg., J. M. Arnau leg., I-1947.

Tipos: Holótipo fêmea, alótipo e três parátipos na minha coleção; dois parátipos na col. do Museu Paranaense, um parátipo na col. Arnau.

O parátipo de maiores dimensões atinge 21 mm de comprimento total e 16 mm nas asas anteriores. O colorido varia um

pouco, sendo geralmente um pouco mais pálido nas pernas, principalmente dos machos.

Fam. Halictidae

Subf. Halictinae

7. *Augochloropsis tupac-amaru* (Holmberg, 1884).

Dois exemplares fêmeas. A pontuação de dois tamanhos no mesonoto e escutelo é muito nítida. O colorido cúpreo-avermelhado do tórax e cabeça está bastante desbotado nestes exemplares, particularmente em um deles. Corresponde ao que Vachal descreveu como *H. hemichrysis*.

8. *Agapostemon semimelleus* Cockerell, 1900.

Uma fêmea. Corresponde exatamente ao *Ag. coryliventris* de Holmberg, descrito três anos mais tarde.

9. *Pseudagapostemon asperrimus*, n. sp.

Fêmea. — Cor oliváceo-escura, com o mesonoto, escutelo, área supraclipeal e depressão marginal do 1.º tergito brônzeo-áureos; grande parte do clipeo, escapo, pedicelo, articulo basal do flagelo e pernas, mais ou menos píceos; o flagelo inferiormente a partir do 2.º articulo, de um pardo claro; tégulas (exceto o bordo interno pardacento), e nervuras na extremidade basal ferrugíneas; as asas hialinas com as nervuras e pterostigma méleos.

Pilosidade: pálida em todo o corpo, um pouco ferrugínea no lado interno dos tarsos, e ligeiramente escura no lado externo-posterior das tíbias médias e posteriores e nos dois últimos tergitos; formando pruinosidade branca (de pelinhos mais densamente plumosos) nas extremidades laterais inferiores das áreas paroculares, ao longo das órbitas externas, a parte visível do pronoto, lóbulos pronotais, todo metanoto, extremidades basais dos tergitos 2-4 e vestigialmente também nas depressões marginais desses tergitos.

Pontuação: fina e uniformemente muito densa, de intervalos careniformes, na fronte, mesonoto e escutelo; um pouco menos densa nas áreas paroculares inferiormente; no clipeo esparsa e bastante grossa, na área supraclipeal com um grande espaço liso no disco; nas genas em parte confluyente em linhas longitudinais; nos tergitos mais fina e bastante densa, com a depressão marginal do 1.º invadida lateralmente e o resto microscópicamente re-

ticulado; pleuras e lados do propódeo fortemente áspero-rugulosos, sem pontuação distinta; todo o metafragma com rugas ainda mais fortes.

Estrutura: o clipeo mais largo que longo, um pouco estreitado para o bordo anterior, medianamente projetado, com uma carena vestigial ao longo do meio alargando-se para a base; distância interocelar interna quase igual a ocelocular, esta aproximadamente como dois diâmetros de um ocelo; o escutelo levemente deprimido ao longo do meio; área basal do propódeo bem delimitada, com numerosas carenas vermiculadas, mais ou menos anastomosadas entre si, formando espaços celuliformes irregulares; depressões marginais dos tergitos um pouco mais marcadas só lateralmente.

Dimensões: Comprimento total aproximado 8 mm, da asa anterior 5,8 mm; largura da cabeça 2 mm, do abdomen 2,5 mm.

M a c h o. — Cor um pouco mais bronzeada e com os seguintes desenhos de um amarelo vivo: mandíbulas (exceto o ápice, bordos e extremidade basal píceos), o labro, no clipeo larga faixa marginal projetada no meio para cima e recortada, o escapo (com uma mancha preta nos dois terços apicais posteriores), o lado anterior do pedicelo, e todo o lado inferior do flagelo (de um amarelo mais sujo), quase a metade apical dos fêmures anteriores e extremidade distal dos médios e posteriores, todas as tíbias e tarsos (apenas o articulo ungueal um pouco mais sujo), os lóbulos pronotais, uma grande mancha transversal, emarginada basalmente, no 6.º esternito e a carena do 7.º tergito (de bordos fuscus).

Pilosidade: muito estragada.

Pontuação: quase como na fêmea. O mesmo quanto ao aspecto da área basal e lados do propódeo, metafragma e pleuras.

Estrutura: o clipeo mais saliente e mais elevado sobre o plano da face; o 2.º articulo do flagelo 2 vezes o seu diâmetro e maior que o basal e pedicelo juntos, os restantes artículos decrescendo até o antepenúltimo que é o menor, mesmo assim excedendo 1,5 vezes o seu próprio diâmetro, todos um pouco estrangulados na articulação; a distância interocelar interna um pouco maior que a ocelocular, esta igualando dois diâmetros de um ocelo; o 5.º esternito de bordo levíssimamente largo-procurvo (linha côncava), o 6.º em linha recurva, no meio levemente emarginada e com cerdinhas ferrugíneas em volta da emarginação; a carena do 7.º tergito emarginada semicircularmente e os lóbulos resultantes arredondados.

Dimensões: Comprimento total aproximado 7 mm, da asa anterior 5,5 mm; largura da cabeça 2 mm, do abdomen 1,7 mm.

Habitat: Tacanas, Tuc., R. Arg., J. M. Arnau leg., I-1947.

Tipos: O holótipo fêmea e o alótipo macho na minha coleção.

Esta espécie facilmente se distingue pela pontuação densa do mesonoto e escutelo, bem assim como pela rugulosidade notável do metapragma (parede vertical posterior do propódeo); no macho chama a atenção a estrutura dos bordos apicais dos esternitos 5.º e 6.º

Fam. Megachilidae

Subf. Lithurginae

10. *Lithurgus pharcidonotus*, n. sp.

Fêmea. — Cor inteiramente preta, apenas alguns vestígios de ferrugíneo no disco posterior dos esternitos 5-6; as antenas inferiormente pardacentas; asas um pouco escurecidas, mais para a zona costal e marginal; tégulas, nervuras e pterostigma pardo-escuros.

Pilosidade: pouco desenvolvida e muito escassa sobre a fronte, vértice, mesonoto e escutelo; branca na face, genas, pleuras, esterno, pernas e propódeo, formando uma linha mais densa entre todo o protórax e mesotórax, particularmente sobre o pronoto e em volta dos lóbulos pronotais; alguns pêlos longos fulvescente-amarelados no bordo do clipeo, na base das mandíbulas e face interna dos basitarsos. Faixas brancas inteiras, estreitas, nos tergitos 1-5, nos primeiros tergitos um pouco gastas; preta no disco dos tergitos e formando tufo denso em volta da placa pigidial; éscopa amarelo-pálida, com faixas esbranquiçadas inteiras no bordo dos esternitos 2-5, bem nítidas, particularmente a do quinto; ápice do sexto esternito com pilosidade preta bastante densa.

Pontuação: bastante densa na fronte, vértice, clipeo, área supraclipeal e genas; um pouco mais grossa e mais densa (intervalos careniformes) no escutelo e parte superior das mesopleuras, nestas aggrandando-se e tornando-se menos marcada em direção ao esterno; no mesonoto ainda mais grossa, com os intervalos em forma de rugas, particularmente no disco anterior, onde passam a formar um reticulado muito grosso, irregularmente celuliforme; muito fina nos três primeiros tergitos e um pouco menos nos três últimos.

Estrutura: face mais longa que larga, com os olhos bastante convergentes para baixo; clipeo simples, sem armações ou

elevações, com o bordo anterior reto no meio; área supraclipeal protuberante, com declive brusco para a sutura epistomática, sendo a protuberância levemente deprimida no meio; genas inferiormente mais largas que os olhos, estreitando-se bastante para cima; o vértice nitidamente convexo, com o bordo posterior levemente procurvo; os ocelos um pouco mais próximos do bordo posterior que das órbitas; artigos do flagelo muito curtos, mesmo o basal um pouco menor que 2+3, igualando o pedicelo. Fêmures posteriores com o bordo inferior cortante; tíbias com numerosos espículos, os basitarsos estreitos, mais longos que as tíbias; as duas células submarginais sub-iguais.

Dimensões: Comprimento total 8 mm, da asa anterior 6,2 mm; largura da cabeça 2,7 mm, do abdomen 2,8 mm.

Habitat: Tacanas, Tuc., R. Arg., J. M. Arnau leg., I-1947.

Tipo: Holótipo na minha coleção.

Esta espécie assemelha-se um tanto a *L. huberi*, que é maior, tem a escopa preta, e a protuberância do meio da face compreende também a base do clipeo.

Subf. *Megachilinae*

11. *Megachile ardua tacanensis* n. var.?

Dois exemplares, machos.

Tratando-se de um grupo ainda mal definido, sem subgênero determinado por não se conhecerem as fêmeas, proponho uma rápida descrição dos exemplares em mãos, referindo-me à descrição completa de Mitchell (1930, Trans. Amer. Entom. Soc., 56: 268), e procurando localizá-la nas chaves mais usadas para a fauna sul-americana.

Aproxima-se extraordinariamente de *M. ardua* Mitchell, 1930, de que possuo um parátipo, procedente de Buenavista, Bolívia, enviado pelo autor. A chave de 1930 leva igualmente a essa espécie, sem nenhuma dúvida. As de Joergensen (1912) e Friese (1908) são muito falhas, levando a primeira ao dilema 6, não entrando em nenhum dos dois itens por serem as franjas amarelas e só no 4.º e 5.º tergitos inteiras; a chave de Friese leva até o dilema 12, não tendo aí entrada pelo mesmo motivo acima exposto. Pela chave de Vachal (1908-9) chega-se ao dilema 8, não entrando em nenhum dos itens, por não possuir projeção basal nas mandíbulas, nem tufo de pêlos pretos na base, e também afastando-se muito de *M. quadrata*, que provavelmente pertence a *Leptorachis*. A de Schrottkey (1913) leva até o dilema 42, n.º 65, *M. bertonii*, que difere notavelmente sob o ponto de vista estrutural, por ser um *Ptilosarus*.

A de Cockerell (1927, Proc. U. S. Nat. Mus., 71, art. 12, pp. 12-13) leva ao dilema 10, diferindo de *beniensis*, que é *M. (Leptorachis) paulistana*, e de *leucostomella*, provavelmente um *Ptilosarus* (? = *bertonii*) que possui carenas preocipitais em reborde forte.

Difere da diagnose de *ardua* no seguinte:

"Color: Black; antennae brownish beneath; legs black, front femora and tibiae yellowish-ferruginous on inner faces; tegulae yellowish-fuscous. Pubescence: without a row of black hairs on clypeus above; fuscous on mesonotum, on scutellum, and on discs of segments two, three and four of abdomen; segments five and six with thin pale appressed tomentum; segments two and three subfasciate laterally; segments four and five with narrow distinct yellowish apical fasciae, and a similar one on fourth tergite basally; the mid tarsal fringes long, white".

Tipos: O holótipo na minha coleção e o parátipo na coleção Arnau. O parátipo tem a pilosidade ainda um pouco mais pálida, sendo branca na face.

12. *Megachile (Sayapis) coelioxiformis* Schrottky, 1910.

Megachile coelioxoides Schrottky, 1909, An. Soc. Cl. Arg., 67: 220 (nec Cress.).
Megachile coelioxiformis Schrottky, 1910, Deutsch. Entom. Ztschr., p. 540. — Schrottky, 1913, Rev. Mus. Paulista, 9: 180. — Schrottky, 1913, An. Soc. Cl. Arg., 75: 247. — Schrottky, 1920, Rev. Mus. Paulista, 12, 2a. pt.: 205. — Mitchell, 1930, Trans. Amer. Entom. Soc., 56: 282. — Moure, 1942, Pap. Avulsos, S. P., 2: 312, 34.
Megachile polydonta Cockerell, 1927, Proc. U. S. Nat. Mus., 71, art. 12, pp. 13 e 18. N. sinónima.
Megachile (Sayapis) coelioxiformis Mitchell, 1943, Ann. Entom. Soc. Amer., 36: 664.

Um macho.

13. *Megachile (Pseudocentron?) squalens* Haliday, 1836.

Um exemplar, macho.

14. *Megachile (Leptorachis) rubricrus*, n. sp.

Dois exemplares, machos.

Trata-se de uma espécie muito próxima à *M. (Leptorachis) paulistana*, a qual leva a chave de Schrottky, bem assim como as de Mitchell e Cockerell (*beniensis* nestas duas últimas, e *paranensis* na primeira). Distingue-se, entretanto, facilmente dessa espécie pela conformação do 2.º artigo dos tarsos anteriores que leva no lado interno-posterior uma grande mancha negra, bem destacada.

Machô. — Cor preta, com o ápice dos fêmures, tÍbias e tarsos ferrugÍneo-avermelhados; uma grande mancha longo-elÍptica na metade posterior da face interna do 2.º artigo dos tarsos

anteriores; as tégulas fuscas, com o bordo exterior pardacento; asas ligeiramente escurecidas, com as nervuras e pterostigma pardacentos.

Pilosidade: amarelo-pálida na face; branca nas genas, pleuras, esterno, pernas, propódeo, primeiro tergito, meio do segundo e no ventre; debaixo da implantação das asas alguns pêlos fuscos; fusca no vértice, mesonoto e escutelo, parte anterior do mesonoto com pêlos brancos misturados; preta no disco dos tergitos 2-4 e os pêlos longos do quinto; faixas brancas, mais ou menos interrompidas, nas depressões marginais dos tergitos 1-5 (no primeiro confinada às extremidades laterais); densa pilosidade branca envolve os lóbulos pronotais, formando tufo atrás das tégulas e linha tomentosa entre o pronoto e mesonoto e na sutura escuto-escutelar; tomento branco na base do quarto tergito estreitamente, largamente no quinto e densamente no sexto; faixas brancas densas nos esternitos 2-3; franjas tarsais pouco desenvolvidas.

Pontuação: medianamente densa no vértice, mais esparsa para os lados; densa nas pleuras (os intervalos careniformes), um pouco menos no mesonoto e escutelo, particularmente na parte posterior do disco do mesonoto, onde os intervalos reticulados igualam e às vezes superam os pontos; um pouco mais fina e mais densa nos tergitos.

Estrutura: face ligeiramente mais longa que larga, com os olhos convergindo para baixo; margem anterior do clipeo largamente emarginada; mandíbulas quadri-dentadas e com projeção basal inferior simples; genas tão largas como os olhos inferiormente, mais estreitadas para cima, com a passagem para o óciput brusca, porém sem chegar a formar rebordo; vértice chato, com a margem posterior procurva; ocelos posteriores mais próximos do bordo posterior do que das órbitas; artigo basal do flagelo um pouco mais longo que o pedicelo e aproximadamente a metade do 2.º, este e os seguintes um pouco mais de duas vezes o próprio diâmetro, o último simples, o mais longo. As coxas anteriores pilosas, com os espinhos coxais medianos, sem cerdas ferruginosas; os fêmures anteriores inferiormente aquilhados; os tarsos pouco dilatados, com o 2.º artigo tão largo como o 1.º, e com uma longa mancha preta na metade posterior da face interna; esporão das tíbias intermédias um pouco recurvado, curto. O abdomen curto, fracamente estreitado para trás; os tergitos com as margens fortemente deprimidas; o sexto tergito não visível desde cima, com a carena bem desenvolvida, quase semi-

circularmente emarginada; a margem do quarto esternito largamente membranosa.

Dimensões: Comprimento total aproximado 8,6 mm, da asa anterior 7,2 mm; largura da cabeça 3,8 mm, do abdomen 3,6 mm.

Habitat: Bodoquena, Mato Grosso, Brasil, X-1938; Rio-Claro, S. P., XI-1943; Tacanas, Tuc., Arg., I-1947.

Tipos: Holótipo no Departamento de Zoologia de São Paulo, 1 parátipo na coleção do Museu Paranaense, 1 parátipo na coleção Arnau, 3 parátipos na minha coleção.

Para ajudar a distinguir os machos do subgênero *Leptorachis*, apresento a chave abaixo, baseada em exemplares da minha coleção, incluindo também *M. (Leptorachis) colombiana* Mitchell, e *M. (Leptorachis) continua* Mitchell, de um modo tentativo, fundado nas boas descrições do autor.

Chave Para os Machos do Subgênero *Leptorachis*.

1. As coxas anteriores glabras e geralmente com um tufo de cerdas avermelhadas junto à base do processo coxal..... 2
- As coxas anteriores pilosas no disco e sem esse tufo de cerdas avermelhadas junto ao processo coxal..... 5
2. As coxas anteriores glabras no disco, porém sem esse tufo de cerdas avermelhadas junto ao processo coxal.....
- M. willineri* Moure, 1947
- As coxas anteriores glabras, porém com um tufo de cerdas avermelhadas junto à base do processo coxal..... 3
3. O 2.º artigo dos tarsos anteriores no lado interno posterior com uma mancha preta; esse artículo nitidamente mais largo que o precedente e seguintes..... *M. aetheria* Mitchell, 1930
- Os artículos 2-4 dos tarsos anteriores internamente com mancha preta, ao menos na metade posterior; o 2.º artículo pouco distinto do conjunto pela sua largura 4
4. Uma faixa de pêlos negra, densa, transversal, seguindo a parte superior da sutura epistomática; o 2.º dente das mandíbulas largo e arredondado; espécie grande (15 mm)... *M. friesei* Schrottky, 1902
- Sem faixa preta transversal na parte superior do clipeo; o 2.º dente das mandíbulas semelhante aos outros, menor, sempre agudo; espécie menor (10-11 mm)..... *M. tenuitarsis* Schrottky, 1920
5. Os tarsos anteriores pretos, ou fuscos, sem se notar mancha preta destacada na face interna do 2.º artículo..... 6
- Os tarsos anteriores amarelos, ou ferrugíneos, com uma mancha preta bem destacada na metade posterior da face interna do 2.º artículo 8
6. Os tergitos sem faixas, mas uniformemente preto-pilosos.....
- M. colombiana* Mitchell, 1930
- Os tergitos com faixas marginais amarelas, ou brancas, bem destacadas 7
7. O sexto tergito amarelo-tomentoso, o quinto branco-tomentoso: os

intervalos igualando os pontos no disco do mesonoto; o escutelo brilhante e só com pêlos pretos no disco.....

M. paulistana Schrottky, 1902

- O sexto tergito igual ao quinto, esbranquiçado piloso; no disco do mesonoto os intervalos menores que os pontos; o escutelo mate e com longos pêlos brancos e pretos misturados. U.S.A., exemplar det. por Mitchell..... *M. petulans* Cresson, 1878
- 8. O sexto tergito e os outros lateralmente, ferrugíneos; o tomento fulvescente do 6.º tergito muito escasso; a pontuação do mesonoto muito densa, com os intervalos careniformes, exceto no disco posteriormente 9
- O sexto tergito e os lados dos outros inteiramente pretos; o tomento do 6.º tergito nulo, ou esbranquiçado; a pontuação do mesonoto densa ou esparsa 10
- 9. A pilosidade da face e do disco do 1.º e 2.º tergitos densa e longa, fulvescente; a distância ocelocipital quase igual a dois diâmetros de um ocelo..... *M. aureiventris* Schrottky, 1902
- A pilosidade da face branca, deixando a parte superior do clipeo glabra; a do disco dos tergitos 1-2 mais curta, escassa e pálida; a distância ocelocipital igual a 1,5 vezes o diâmetro de um ocelo..... *M. psenopogoniaea* n. sp.
- 10. A base do abdomen avermelhada; a face com numerosos pêlos pretos misturados; o 6.º tergito sem tomento e apenas com cerdas pretas esparsas eretas..... *M. continua* Mitchell, 1930
- A base do 1.º segmento abdominal preta; a face apenas com pilosidade amarelenta, ou esbranquiçada; o 6.º tergito densamente pálido-tomentoso *M. rubricrus* n. sp.

Megachile (Leptorachis) psenopogoniaea, n. sp.

Por se tratar de uma espécie não constatada na região em estudo, mas cuja publicação se torna necessária para complemento da chave, descrevo-a sem numerá-la. O mesmo se fará com relação às espécies novas de *M. (Acentron)*, que abaixo descreverei.

Macho. — Cor preta, com o escapo brunescente por baixo; as tégulas, nervuras na metade basal, tíbias e tarsos, algumas manchas grandes nos fêmures, lados dos tergitos 2-4, o 5.º e 6.º inteiramente avermelhados (o 5.º um pouco escuro na extremidade basal e na depressão marginal); membrana alar um pouco ferrugínea.

Pilosidade: pálido-fulvescente na face, onde é densa na metade inferior, porém na parte superior do clipeo bastante escassa; de igual cor, muito escassa, no vértice, mesonoto e escutelo, mais densa e mais longa no propódeo, e dois primeiros tergitos, densa e mais curta no terceiro, misturada com pêlos fuscos no quarto; pálida nas genas e nas pleuras, no esterno, pernas e ventre; cerdas eretas pretas no quinto e no sexto, neste mais fracas; faixas muito imperfeitas, pálidas, mais ou menos interrompidas

em 2-4, brancas bem destacadas no bordo dos esternitos 2-3, mais imperfeita em 1; franjas tarsais pouco desenvolvidas; tomento do quinto e sexto tergitos muito esparso.

Pontuação: esparsa no clipeo superiormente; densa no vértice, um pouco menos em direção às órbitas; muito densa (intervalos careniformes) no mesonoto, escutelo e pleuras; mais fina e densa no disco dos tergitos, menos para os lados, no quinto em pontos alongados, no sexto muito escassa e imperfeita.

Estrutura: face tão larga superiormente como longa, com as órbitas convergindo para baixo; margem apical do clipeo levemente recurva; mandíbulas quadri-dentadas e com projeção basal longa, simples, com o bordo entre a extremidade da projeção e o dente apical em linha côncava contínua; genas estreitadas para cima e sem formações protuberantes em baixo; vértice chato, com o bordo posterior procurvo; os ocelos bastante mais próximos do bordo posterior do que das órbitas (1,5:3 diâmetros de ocelo); artigo basal do flagelo igual ao pedicelo e menor que o 2.º, este e os seguintes quase duas vezes mais longos que largos, o último um pouco achatado e dilatado. Coxas do 1.º par pilosas no disco, com os espinhos coxais medianamente desenvolvidos, sem tufo de cerdas avermelhadas; fêmures pouco aquilhados inferiormente; tarsos pouco dilatados, o 2.º artigo um pouco mais que os outros e com uma mancha preta alongado-elíptica na metade posterior da face interna; tíbias intermédias bastante mais longas que os basitarsos, com o esporão curto, fortemente curvo, praticamente inarticulado. Abdomen levemente estreitado para trás, com as depressões marginais marcadas lateralmente em 2-3, também vestigialmente no meio de 4, e mais fortemente em 5; o sexto tergito não visível desde cima, com a carena muito fracamente emarginada; com 4 esternitos expostos, o quarto com o bordo largamente membranoso.

Dimensões: Comprimento total aproximado 10 mm, da asa anterior 7 mm; largura da cabeça 4,1 mm, do abdomen 3,5 mm.

Habitat: Batatais, S. P., P. F. S. Pereira leg., XII-1943; Vila-Ema, S. P., Conde A. A. Barbiellini leg., 25-XII-1943.

Tipos: Holótipo e um parátipo na minha coleção.

Assemelha-se bastante a *M. (Leptorachis) aureiventris* (= *M. capra* Schrottky), distinguindo-se facilmente pela pontuação mais densa do mesonoto, distância menor entre os ocelos posteriores e o bordo posterior do vértice, e pilosidade dos primeiros tergitos menos desenvolvida.

15. *Megachile (Acentron) arnau*, n. sp.

Macho. — Cor preta, com a parte anterior dos fêmures e apical das tíbias dianteiras e todos os tarsos, amarelo-claros; o 2.º artigo dos tarsos anteriores com uma grande mancha triangular na metade posterior da face interna, e uma estria preta transversal na face interna do 3.º artigo do mesmo par, vestigial no 4.º; o ápice das unhas preto em todos os pares; tégulas e nervuras fuscas.

Pilosidade: dourada, densa e longa em toda face até o nível dos ocelos; pálida, longa e mais rala no escapo, vértice e mesonoto, escutelo e pleuras propodeais; branca nas genas, pleuras, pernas, propódeo, 1.º tergito e ventre, neste em forma de longos pêlos voltados para dentro nos esternitos 2-3; duas linhas obliquas de pilosidade branca densa, ladeando uma carena glabra, na parte inferior das genas; densa e pálida em volta dos lóbulos pronotais e atrás das tégulas; tomentosa, fraca, na sutura escuto-escutelar; faixas amarelentas muito estreitadas para o meio e aí interrompidas, nos tergitos 1-4 (em 1 apenas nas extremidades laterais); disco dos tergitos 1-2 com pêlos longos pálidos, em 3-4 pálidos e fuscos misturados, mais curtos; na metade basal do 5.º e meio do 6.º com denso tomento amarelo, no último mais pálido e estreitado para os lados; esses tergitos também com cerdas longas esparsas, pálidas; franja posterior dos tarsos anteriores dupla: a superior branca, a inferior preta, mais longa, um pouco esbranquiçada junto à base do 2.º artigo; outra franja mais curta, pálida e escurecida para a ponta, voltada para a frente ao longo da linha média do basitarso, formando a "concha".

Pontuação: fina e densa no vértice, ligeiramente mais esparsa para os lados posteriormente; densíssima ("crowded") no mesonoto, escutelo e parte superior das pleuras; fina nos tergitos basais e engrossando para os últimos; bastante densa nos lados e mais esparsa para a linha média posterior e extremidades laterais em 3-4.

Estrutura: Facé um pouco mais longa que larga, os olhos pouco convergentes para baixo; margem apical do clipeo levemente recurva; mandíbulas 4-dentadas, com uma projeção basal inferior, dando de perfil um aspecto triangular, o bordo externo superior um pouco saliente, e logo abaixo a face externa depressa; no lado interno da ponta da projeção basal com um pequeno tufo denso de pêlos dourados; genas mais largas que

os olhos no meio, quase rebordadas, estreitadas para cima suavemente e para baixo mais bruscamente; tendo aí além das linhas de pilosidade branca ladeando a carena lisa, uma depressão glabra seguida de um reborde saliente, destinado ao alojamento da projeção basal das mandíbulas; o vértice chato, fracamente procurvo o bordo posterior, os ocelos aproximadamente a igual distâncias dos olhos que do bordo posterior; artículo basal do flagelo mais longo que o pedicelo quase igualando o 2.º, este e os seguintes 1,5 vezes mais longos que largos, o último muito achatado e fortemente dilatado em losango. Coxas anteriores glabras no disco, com os espinhos coxais fortes, dilatados na base, sem cerdas avermelhadas; fêmures anteriores um pouco aquilhados inferiormente, os tarsos dilatados, o basitarso quase tão longo como a tíbia, com o bordo antero-superior na base em linha levemente côncava e depois decididamente convexa, completando o contorno geral até o ápice aplicado ao 2.º artículo; este na sua largura máxima igualando 1,5 a distância entre os dois pontos de articulação; tíbias intermédias mais longas que os basitarsos, sem esporão, mas alargadas para o ápice e aí com uma projeção grossa e curta antero-interna, como em *M. (Acentron) candida*. Abdomen curto, subparalelo, com as depressões marginais dos tergitos 1-4 lateralmente bem marcadas, em 5 em toda a extensão; o sexto tergito vertical, com a carena medianamente emarginada; os esternitos expostos em número de 4, sem faixas marginais, a não ser nas extremidades laterais de 2-3.

Dimensões: Comprimento total aproximado 10 mm, da asa anterior 8,6 mm; largura da cabeça 4,6 mm, do abdomen 4,1 mm.

Habitat: Tacanas, Tuc., R. A., J. M. Arnau leg., I-1947.

Tipos: O holótipo macho na minha coleção.

Assemelha-se bastante a *M. (Acentron) bernardina* e *M. (Acentron) lentifera*, porém estas têm o artículo apical do flagelo pouco alargado e em forma elipsoidal, o 2.º artículo dos tarsos anteriores mais longo e com a mancha preta em forma de linha longitudinal acompanhada de uma outra amarela, os basitarsos menos dilatados e o 5.º tergito também com faixa. Os basitarsos são dilatados como em *M. (Acentron) candida*, porém sem aquele enchimento do contorno por um pente de cerdas apical, mas pelo mesmo ápice do basitarso que continua o contorno do 2.º artículo. As mandíbulas são de um tipo intermédio entre *M. (Acentron) bernardina* e *M. (Acentron) candida*.

Em Curitiba encontrei vários exemplares de uma espécie muito próxima, mas que se distingue facilmente pela formação das mandíbulas, tarsos anteriores e respectivas franjas, pelo colorido das pernas e têgulas, pilosidade do disco dos tergitos. As mandíbulas não apresentam a saliência superior seguida logo abaixo por uma depressão, como em

M. (Acentron) arnau. Pelo colorido geral tem bastantes pontos de contacto com *M. (Acentron) bernardina*, porém o 2.º artigo dos tarsos, o artigo apical do flagelo tem uma configuração bastante diferente.

Megachile (Acentron) hastigera, n. sp.

Mach o. — Cor preta, com as tégulas, fêmures em grande parte, tíbias, tarsos médios e posteriores em grande parte ferruginosos; a parte anterior dos fêmures, ápice da tíbia e tarsos das pernas dianteiras, amarelentos; os artículos intermédios dos outros pares de pernas, também um tanto amarelentos; os basitarsos médios e posteriores com os bordos anterior e posterior mais ou menos marginados de negro; o flagelo inferiormente um pouco avermelhado; as asas levemente pardo-ferrugíneas e as nervuras mais intensamente, bem assim como a depressão marginal do quinto tergito e a parte apical do sexto por baixo da carena.

Pilosidade: dourada na face, fulvescente no vértice, mesonoto, escutelo e disco dos tergitos, mais longa nos dois primeiros tergitos; um pouco mais pálida nas genas, pleuras, pernas, propódeo e os pêlos mais longos dos tergitos 5-6; quase branca no esterno e ventre, neste com pêlos recurvados para o centro nos esternitos 2-3; duas linhas obliquas de pilosidade branca ladeando uma carena glabra na parte inferior das genas; praticamente sem tomento na sutura escuto-escutelar; faixas amarelentas completas nas depressões marginais dos tergitos 2-4, vestigial no quinto e largamente interrompida no primeiro; tomento da mesma cor na extremidade basal dos tergitos 4-5, e no disco do sexto; esternitos sem faixas; franja tarsal postero-superior branca, postero-inferior manchada no ápice dos pêlos, dando ao conjunto um aspecto pintalgado, a antero-inferior preta.

Pontuação: densa e fina no vértice; densíssima no mesonoto, escutelo e mesopleuras; mais fina e bastante densa e uniforme nos tergitos, mesmo no quarto; no quinto tergito os pontos maiores e alongados longitudinalmente.

Estrutura: Face ligeiramente mais longa que larga, com os olhos levemente convergentes para baixo; bordo apical do clipeo saliente e emarginada no meio; mandíbulas quadri-dentadas, com projeção basal inferior grande, o bordo desde a extremidade inferior até o ápice da mandíbula bisinuoso, e junto do ápice da projeção internamente com um tufo de pêlos dourados; genas como na espécie anterior; vértice chato, com a margem posterior levemente procurva, os ocelos quase a igual distância dessa mar-

gem como das órbitas; o artículo basal do flagelo maior que o pedicelo, quase igual ao 2.º; este e os seguintes 1,5 vezes o próprio diâmetro, o último fortemente achatado e muito dilatado, em losango. Coxas do primeiro par glabras no disco, os espinhos coxais longos e fortes, um pouco alargados inferiormente, sem tufo de cerdas avermelhadas; os fêmures bastante claramente aquilhados no terço distal inferior; os tarsos dilatados, o contorno anterior na base em linha côncava, depois muito levemente convexa, um tanto irregular, aplicando-se a ponta do 1.º em continuação com o 2.º; este tão largo como a distância entre as articulações, com uma mancha preta cordiforme na metade posterior da face interna; tíbias médias mais longas que os basitarsos, sem esporão, mas com projeção curta e obtusa como na espécie anterior. Abdomen curto e subparalelo, com as depressões marginais bem marcadas em 4-5, menos nitidamente na parte média de 1-3; o 6.º tergito vertical, com a carena fracamente marginada; esternitos expostos em número de quatro, sem faixas marginais.

Dimensões: Comprimento total aproximado 10,5 mm, da asa anterior 8,5 mm; largura da cabeça 4,5 mm, do abdomen 4,2 mm.

Habitat: Curitiba, Pr., P. J. Moure leg., 19-XI-1937, 26-X-1938, 26-XI-1938, 3-II-1941. Igualmente um exemplar de Montenegro, R. Gr. S., II-1942.

Tipos: O holótipo e três parátipos na minha coleção, um parátipo na coleção do Museu Paranaense.

Para o melhor conhecimento do subgênero *Acentron*, dou abaixo uma chave para os machos, de acordo com exemplares da minha coleção:

Chave Para os Machos do Subgênero *Acentron*.

1. Basitarsos anteriores pouco dilatados, mais estreitos que a tíbia, de lados paralelos; os artículos seguintes pouco deformados, assemelhando-se aos do par intermédio; mancha preta da face interno do 2.º artículo mais ou menos alongado-oval, de contornos imprecisos.....
M. civilis Mitchell, 1930
- Basitarsos anteriores claramente dilatados para o ápice, ou terço apical; os artículos seguintes modificados profundamente para seguir o contorno geral; mancha da face interna do 2.º artículo, em geral, de contornos precisos 2
2. Face antero-inferior dos fêmures dianteiros invadida até o meio, antes da parte aquilhada, por uma pilosidade branca densa e curta; 2.º artículo dos tarsos mais longo que a largura do basitarso e com a mancha preta da face interna em forma de estria longitudinal, acompanhada por outra amarela; último artículo do flagelo elipsoidal... 3

- Face antero-inferior dos fêmures dianteiros glabra, ou só ligeiramente pilosa próximo ao bordo; 2.º artículo dos tarsos mais curto que a largura do basitarso; mancha interna variável, nunca com o aspecto supra 4
- 3. O colorido das pernas e das tégulas ferruginoso em grande parte...
M. bernardina Schrottky, 1913
- O colorido das pernas e das tégulas preto, sem manchas avermelhadas *M. lentifera* Vachal, 1909
- 4. O artículo apical do flagelo fortemente dilatado em losango; os esternitos 2-3 com longos pêlos recurvados para dentro 5
- O artículo apical do flagelo moderadamente dilatado e de contornos mais ou menos arredondados; os esternitos 2-3 com pilosidade simples 6
- 5. Franja tarsal infero-posterior pintalgada de pardo; mancha do 2.º artículo cordiforme; face externa das mandíbulas simplesmente arredondada; faixas do abdomen inteiras; tégulas e pernas em grande parte avermelhadas *M. hastigera* n. sp.
- Franja tarsal infero-posterior preta; mancha do 2.º artículo tarsal em triângulo; face externa das mandíbulas deprimida; faixas do abdomen interrompidas no meio; tégulas, pernas médias e posteriores pretas *M. arnau* n. sp.
- 6. Coxas intermédias armadas com um pequeno espinho, e os basitarsos desse par alargados em forma de raquette invertida e com uma protuberância na face interna; franja infero-posterior dos tarsos anteriores pintalgada (U.S.A.—Mitchell det.) *M. albitarsis* Cresson, 18
- Coxas das pernas intermédias sem espinho, basitarsos simples; franja infero-posterior dos tarsos anteriores não pintalgada, inteiramente preta, ou com a metade apical dos pêlos dessa cor 7
- 7. Com tomento esparso em toda a extensão do mesonoto por baixo dos pêlos longos; asas e nervuras ferrugíneas; comprimento do basitarso anterior, entre os pontos de articulação, igualando duas vezes e meia a sua largura máxima; espécie grande e robusta, com o mesonoto fulvo-piloso *M. gigas* Schrottky, 1908
- Com o tomento concentrado no terço anterior do mesonoto e formando uma linha na sutura escuto-escutelar, unida aos tufos post-tégulares; asas e nervuras mais ou menos fuscas; comprimento do basitarso anterior quando muito duas vezes a sua largura; espécies menores, com o mesonoto amarelento piloso 8
- 8. O mesosterno com um tubérculo espiniforme; o ápice do bordo anterior dos basitarsos dianteiros aplicando-es normalmente ao 2.º artículo, formando um contorno seguido com o mesmo; 6.º tergito mais ou menos avermelhado *M. tupinaquina* Schrottky, 1913
- O mesosterno simples; bordo anterior dos basitarsos dianteiros com o ápice curvado para dentro e aí com um pente de cerdas pretas completando o contorno com o 2.º artículo; 6.º tergito preto
M. candida Smith, 1879

Dou a seguir a descrição do macho de *M. gigas* que ainda não era conhecido:

Megachile (Acentron) gigas Schrottky, 1908.

Megachile gigas Schrottky, 1908, An. Soc. Cl. Arg., 65: 235, 7. — Schrottky, 1913, Rev. Mus. Paulista, 9: 167, 21.

Mach o. — Cor preta, com as tégulas, asas e pernas ferrugíneas; as coxas, trocânteres e grandes manchas nos fêmures.

pretos; os tarsos do 1.º par amarelos, com uma mancha preta estreita longitudinal e outra formando ângulo reto na base da metade posterior da face interna do 2.º artigo; a ponta das unhas preta.

Pilosidade: densa, longa e dourada na face; fulvescente no vértice, mesonoto, escutelo e disco dos tergitos, sendo mais longa nos dois primeiros; em todo o mesonoto com pêlos curtos, grossos, mais pálidos, formando um tomento esparso muito característico; branca nas genas, pernas, esterno e ventre; pálida nas pleuras e propódeo; na parte inferior das genas com duas linhas obliquas de pilosidade branca mais densa; sutura escuto-escutelar sem tomento; franja postero-superior dos tarsos dianteiros branca, a infero-posterior suja de fusco, antero-inferior igualmente fusca; as faixas nas depressões marginais 2-4 pálido-amarelentas, completas, vestigiais nos lados de 1 e 5; tomento pálido na base dos tergitos quarto e quinto, neste mais largamente, e no disco do sexto; faixas dos esternitos 2-3 muito fracas e com alguns pêlos longos no disco dos mesmos, porém sem formar tufo recurvados para dentro.

Pontuação: fina e densa no vértice; densíssima no mesonoto, escutelo e mesopleuras superiormente; bastante densa e uniforme na distribuição, nos tergitos 2-4, um pouco mais esparso nos lados; no quinto em pontos alongados.

Estrutura: A face mais longa que larga, com as órbitas levemente convergentes para baixo; bordo anterior do clipeo largamente emarginado; mandíbulas imperfeitamente 4-dentadas (o dente entre 1-3 faltando ou sendo vestigial), com forte projeção basal inferior, com a linha entre a extremidade da projeção e o ápice quase reta, apenas com uma saliência largamente arredondada nos dois quintos basais, como que superposta; vista de cima a curvatura das mandíbulas normal, sem depressão na face externa e com o tufo de pêlos dourados junto a extremidade da projeção, do lado interno; genas e vértice como em *M. (Acentron) arnau*; os ocelos mais próximos das órbitas que do bordo posterior; artigo basal do flagelo o duplo do pedicelo e um pouco mais curto que o segundo, este e os seguintes quase o duplo do próprio diâmetro, o último achatado e um pouco alargado. Par dianteiro de pernas com as coxas glabras no disco e com os espinhos fortes, sem tufo de cerdas avermelhadas; os fêmures um pouco aquilhados inferiormente; os tarsos alargados, com o contorno do bordo anterior nos dois terços basais do basitarso reto, paralelo ao outro bordo, e depois alargado em curva suave que

continua no 2.º artigo; este um pouco mais largo que longo; tíbias médias mais longas que os basitarsos, sem esporão, porém projetadas curta e obtusamente para dentro na extremidade distal; fêmures posteriores bastante inchados superiormente no terço proximal. Abdomen curto e subparalelo, com as depressões marginais marcadas lateralmente em 2-3, e em toda a extensão em 4-5, neste último de aspecto membranoso; 6.º tergito vertical, com a carena medianamente emarginada; 4 esternitos expostos, com faixas fracas em 2-3.

Dimensões: Comprimento total aproximado 12,5 mm, da asa anterior 9,5 mm; largura da cabeça 5,2 mm, do abdomen 4,9 mm.

Habitat: O tipo, fêmea, apenas com indicação de Est. S. Paulo; várias fêmeas e o alótipo de Batatais, S. P., P. F. S. Pereira e A. Stafuzza leg., III e XII-1943, III-1945 e uma fêmea de Pitangui, Pr., 22-II-1936.

Tipos: O alótipo macho na minha coleção.

Esta espécie facilmente se distingue pelo tamanho, colorido e tomento esparso do mesonoto. Haveria possibilidades de ser a *M. (Acentron) pallipes* Smith, 1879, que não conheço "in natura".

Megachile (Acentron) civilis Mitchell, 1930.

Megachile civilis Mitchell, 1930, Trans. Am. Ent. Soc., 56: 208.

Megachile manaosensis Mitchell, 1930, Trans. Am. Ent. Soc., 56: 203, nec Schrottky, 1913.

Megachile (Acentron) civilis Mitchell, 1934, Trans. Am. Ent. Soc., 59: 303. — Mitchell, 1943, Ann. Entom. Soc. Amer., 36: 663.

Megachile florensis Mitchell, 1943, Ann. Entom. Soc. Amer., 36: 671.

Recebi muitos machos e fêmeas desta espécie, de várias localidades do Est. de São Paulo e do Paraguai. Ao macho aplica-se inteiramente a descrição de *Megachile manaosensis* Mitchell, nec Schrottky. Entretanto, convém notar que Mitchell, em 1943, ao relacionar as espécies sul-americanas de *Acentron* não inclui a sua espécie, e lhe dá um nome novo *M. florensis*, sem lhe assinar uma posição subgenérica determinada.

Fam. Xylocopidae

Subf. Xylocopinae

16. *Xylocopa aurulenta* (Fabricius, 1804-5)

Três exemplares, fêmeas. Chega-se facilmente a esta espécie pelas chaves de Schrottky, 1902; e de Brèthes, 1916.

17. *Xylocopa ciliata* Burmeister, 1876.

Um exemplar, fêmea. As boas indicações de Brèthes, e a diagnose de Perez como *X. cavicornis*, não deixam dúvidas no reconhecimento desta espécie.

Fam. Anthophoridae

18. *Exomalopsis* sp.

Um exemplar, macho. Presentemente indeterminável.

19. *Tapinotaspis chalybaea* (Friese, 1899).

Exomalopsis chalybaea Friese, 1899, Ann. Nat. Hofm., Wien, 14: 267, 32. — Schrottky, 1902, Rev. Mus. Paulista, 5: 534, 16. — Friese, 1906, Ztschr. Hym. Dipt., 6: 169.
Tapinotaspis chacabucensis Holmberg, 1903, An. Mus. Nac. B. Aires, 9: 415, 40. — Schrottky, 1913, An. Soc. Cl. Arg., 75: 256. — Moure, 1941, Rev. de Entom., Rio, 12: 516. — Sandhouse, 1943, Proc. U. S. Nat. Mus., 92: 603. — Moure, 1944, Rev. de Entom., Rio, 15: 9.
Tetrapedia chalybaea Vachal, 1904, Rev. d'Entom., Caen, 23: 23, 42.
Exomalopsis longicornis Friese, 1906, Ztschr. Hym. Dipt., 6: 170, 2. — Friese, 1908, Flora of Fauna, 10: 57. — Friese, 1910, Zool. Jahrb. Abt. Syst., 29: 643. — Schrottky, 1913, An. Soc. Cl. Arg., 75: 259.
Tetrapedia chacabucensis Brèthes, 1909, An. Mus. Nac. B. Aires, 19: 222. — Brèthes, 1910, An. Mus. Nac. B. Aires, 20: 290.
Tetrapedia chalybaea Ducke, 1910, Deutsch. Entom. Ztschr., p. 369.
Tetrapedia chalybela Schrottky, 1913, An. Soc. Cl. Arg., 75: 260 (lapsus calami).
Tapinotaspis chalybaea Moure, 1944, Rev. de Entom., Rio, 15: 9.

Oito exemplares, sendo 4 machos e 4 fêmeas.

Com os preciosos exemplares agora recebidos, pude reconhecer bem a espécie de Friese, e identificá-la com a espécie de Holmberg. O único exemplar que possuía desta espécie em 1941, era um macho, sem antenas e muito descorado, o que me fez supor tratar-se de espécie distinta em 1944, separando *chacabucensis* de *chalybaea*.

A base da presente sinonímia, deve ser reconhecido como diagenótipo de *Tapinotaspis*, a *Exomalopsis chalybaea* Friese, 1899.

Arhysoceble, n. gen.

Do grupo anteriormente designado como *Tetrapedia*, em sentido muito lato. A chave de Michener (1944) para os *Anthophorinae* leva ao dilema 7: *Exomalopsini*, contudo essa tribo parece pouco homogênea.

Caracteres comuns: Com muitos desenhos amarelos. Pontuação finíssima na fronte e mesonoto, com os intervalos brilhantes, e o revestimento do mesonoto em forma de pruinose curtíssima. O labro mais largo que longo; as mandíbulas bi-dentadas; os palpos maxilares de 6 artículos, o 2.º artículo o mais longo, maior que 3+4; o clipeo um pouco inchado; sutura sub-antenal simples, igual ou menor que o diâmetro alveolar; a distância en-

tre os alvéolos maior que destes às órbitas; linha frontal em forma de carena curta logo acima da área supraclipeal; sem rebordo preocipital; as genas muito estreitas; antenas curtas, cilíndricas a partir do 2.º artículo flagelar, o escapo mais curto que a distância do alvéolo ao ocelo, o pedicelo elíptico, o artículo basal fortemente obcônico, o 2.º artículo flagelar o mais curto, aproximadamente a metade do próprio diâmetro, os seguintes aumentando aos poucos, sendo o último o mais longo. Pronoto estreito, não rebordado; mesonoto mais largo que longo, geralmente os notaulos pouco marcados; escutelo posteriormente em declive contínuo com o metanoto e propódeo; neste a área basal não delimitada. Asas anteriores com o pterostigma de tipo médio, a célula marginal separada do bordo da asa no ápice; 3 c. submarginais, a 2ª trapezoidal, com o 1.º *m-cu* quase no ápice; a 1ª medial não pedunculada; lóbulo jugal das asas posteriores um pouco menos da metade do vanal; a veia cúbito-vanal (*cu-v*) um pouco maior que a metade do trecho da *Cu-M*, que se lhe segue antes da bifurcação. Esporões das tíbias médias e posteriores iguais, simples, apenas com numerosas barbulas muito finas e muito curtas; unhas bifidas e com arólio. Abdomen de tipo oblongo, com o 1.º tergito relativamente curto, os seguintes com os lados do grádulo não aparente.

Macho. — Artículo basal do flagelo igualando os dois seguintes; escutelo mais claramente deprimido no meio; basitarsos só um pouco mais curtos que a tibia, simples; placa basitibial bastante bem formada; unhas simétricas. Último tergito visível (7.º) ogival de ápice arredondado, sem placa pigidial; esternitos 1-2 de bordo reto, 3-5 largamente procurvo, com franjas de pêlos longos, os laterais voltados para dentro; 6.º esternito, último visível, oblongo-arredondado, sem modificações ou esclerosamentos especiais; o 7.º com duas longas projeções laterais curvado-adelgaçadas para dentro e longo-piloso-plumosas no ápice; 8.º profundamente partido ao meio, com os lóbulos longos, estreitos e arredondados, pilosos, com duas esclerozações divergentes para o ápice perto do centro e aí mais densamente piloso; a armadura genital com a gonobase membranácea, os gonocoxitos curtos e largos e os gonóstilos continuando o plano inferior, finos e curvados para dentro, de ápice um pouco clavado, glabros; as valvas robustas e curtas.

Fêmea. — Artículo basal do flagelo um pouco mais longo que os dois seguintes juntos; escutelo fracamente ou quase nada deprimido no meio; basitarsos anteriores alargados por

uma franja de numerosas cerdas curtas no bordo externo-posterior; os basitarsos posteriores aproximadamente três quartos do comprimento da tíbia, e da largura desta, com cerdas longas na face interna; a escopa formada de pêlos plumosos longos. O sexto tergito com placa pigidial transverso-rugulosa, com os lados convergindo em ângulo agudo, porém o ápice prolongado em apêndice espatulado ligeiramente, sem estrangulamento na base, como em *Paratetrapedia*.

Genótipo: *Arhysoceble xanthopoda* n. sp.

Na divisão que aos poucos se está fazendo do antigo gênero *Tetrapedia*, no sentido da monografia de Friese, já foram destacados vários grupos de espécies, sendo os seguintes, com os respectivos sinônimos, por ordem de aparecimento:

I. *Tetrapedia* Klug, 1810. — Haplótipo: *Tetrapedia diversipes* Klug, 1810.

II. *Lagobata* Smith, 1861. — Diagenótipo: *Ancyloscelis ornata* Spinola, 1853.

III. *Fiorentinia* Dalla Torre, 1896. — Autogenótipo: *Epeicharis mexicanus* Radoszkowski, 1884. Sinônimos: *Epeicharis* Radoszkowski, 1884; *Pachycentris* Friese, 1902; *Chaetostetha* Michener, 1942.

IV. *Caenonomada* Ashmead, 1899. — Ortótipo: *Caenonomada bruneri* Ashmead, 1899. Sinônimo: *Chacoana* Holmberg, 1903.

V. *Tapinotaspis* Holmberg, 1903. — Diagenótipo: *Exomalopsis chalybaea* Friese, 1899.

VI. *Chalepogenus* Holmberg, 1903. — Diagenótipo: *Tetrapedia muel-leri* Friese, 1899. Sinônimo: *Desmotetrapedia* Schrottky, 1909.

VII. *Lanthanometissa* Holmberg, 1903. — Diagenótipo: *Tetrapedia goeldiana* Friese, 1899. Sinônimo: *Tetrapedia (Schrottky)* Friese, 1908.

VIII. *Paratetrapedia* Moure, 1941. — Ortótipo: *Ancyloscelis lineata* Spinola, 1853. Sinônimo: *Chalepogenoides* Michener, 1942.

IX. *Trigonopedia* Moure, 1941. — Ortótipo: *Trigonopedia oligotricha* Moure, 1941.

X. *Tapinotaspoides* Moure, 1944. — Ortótipo: *Tetrapedia serraticornis* Friese, 1899.

O gênero a que mais se assemelha o que acabo de descrever, é à *Paratetrapedia*. Distingue-se por em *Paratetrapedia* ser a pontuação mais forte, o clipeo mais curto, ter uma área subantenal triangular mais ou menos nítida (principalmente nas fêmeas), um reborde preocipital bem marcado na região do vértice, área propodeal pontuada; os basitarsos III mais largos e nos machos geralmente armados; placa basitibial pequena na fêmea e obsoleta no macho; placa pigidial na fêmea em triângulo agudo completo, seguido de uma projeção espatuliforme estreita, como que independente do restante da área; 7.º tergito do macho em ponta, geralmente revestida de pêlos; os esternitos do macho mais ou menos profundamente modificados, geralmente 4-5, o 7.º e 8.º bilobados, ou bi-projetados, porém de tipo diferente; a armadura genital (em *P. maculata*) mais achatada, com os gonóstilos amplamente alados na base e continuando os dois planos, dorsal e ventral, adelgaçando-se para o ápice, que é capitato.

Arhysoceble xanthopoda, n. sp.

Fêmea. — Cabeça e tórax pretos, abdomen amarelo. Desenhos amarelos na cabeça e tórax: mandíbulas (exceto o ápice e a linha articular, pretos), labro, clipeo, área supraclipeal e áreas paroculares até a altura dos alvéolos, escapo e flagelo anteriormente (este de um amarelo muito sujo), uma linha no pronoto alargando-se para os laods, lóbulos pronotais e parte adjacente das mesopleuras, no mesonoto duas linhas médias longitudinais e outra encurtada anteriormente em cada bordo lateral, o escutelo e partes adjacentes das axilas, o metanoto (a área dorso-lateral-metanotal escura), o terço anterior das tégulas com o restante pálido-translúcido, escleritos basais da asa; as pernas inteiramente (exceto as coxas em grande parte, e os trocânteres, um tanto fusco-pardos); as asas um tanto fuscas, com as nervuras e pterostigma pardo-méleos. No abdomen as depressões marginais 2-5 mais largamente no meio, fuscas, a 2ª fracamente; os últimos esternitos um pouco pardos e todo o último segmento.

Pilosidade: pálido-dourada, bastante desenvolvida no clipeo e labro, mais plumosa na fronte, genas, pronoto e pleuras, inclusive as propodeais; curta no vértice e extremidades laterais do escutelo; sobre o restante do dorso do tórax uma pruinosidade curtíssima, amarelenta em certa luz. No abdomen com a parte deprimida glabra e a basal escasso-pilosa, formando franja sobre a depressão do quinto, e aos lados da área pigidial no sexto; bastante longa para a parte apical dos esternitos; nas pernas ferrugíneo-dourada, porém nos basitarsos posteriores levemente fusca.

Pontuação: finíssima, microscópica, na cabeça e tórax, apenas um pouco mais forte no clipeo e labro (pêlos longos); no abdomen imperceptível, fora os pontos pilíferos.

Estrutura: como está anotada nos caracteres genéricos, porém com a linha mesoscutal claramente elevada.

Dimensões: Comprimento total aproximado 7,6 mm, da asa anterior 6,7 mm; largura da cabeça 2,5 mm, do abdomen 2,6 mm.

Macho. — Quase inteiramente igual à fêmea, apenas o escutelo mais piloso, bem assim como as depressões dos tergitos 3- e seguintes, também mais densa nos esternitos. Somente os tergitos 2-4 tem as depressões marginais pardacentas, os seguintes são amarelos, como os basais. A genitália e esternitos adjacentes, como na descrição genérica.

Dimensões: Comprimento total aproximado 7,5 mm, da asa anterior 6,2 mm; largura da cabeça 2,2 mm, do abdomen 2,4 mm.

Habitat: Rio-Claro, S. P., X-1939/X-1940/XI-1943, e dois exemplares menores (5,4 mm) de Niquelândia, Goiás, P. J. A. Motta leg., III-1941.

Tipos: Holótipo, alótipo e 4 parátipos na minha coleção.

Arhysoceble dichroopoda, n. sp.

Fêmea. — Cor como na espécie precedente, porém a parte posterior do escapo (2/3 apicais) e todo o flagelo mais escuro, o mesonoto sem as estrias médias longitudinais e as laterais reduzidas a uma pequena mancha próxima às axilas; bordo postero-inferior do escutelo estreitamente escuro; coxas e trocânteres pardos, bem como a parte proximal dos fêmures médios e posteriores e quase inteiramente os anteriores; placa basitibial preta; asas um pouco mais escuras. Abdomen preto, com uma estreita faixa amarela estrangulada no meio do 1.º tergito, nos outros com faixas basais alargando-se lateralmente; todo o ventre preto.

Pilosidade: como na espécie anterior, porém os basitarsos posteriores com a face externa fusco-pilosa, em forte contraste com o restante.

Pontuação: fina e microscópica como na espécie anterior, sendo a do clipeo e labro menos grossa.

Estrutura: a linha mesoscutal fortemente deprimida; o escutelo mais fortemente bigiboso.

Dimensões: Comprimento total aproximado 7,8 mm, da asa anterior 7 mm; largura da cabeça 2,6 mm, do abdomen 2,6 mm.

Habitat: Ponta-Grossa, Pr., F. Justus leg., X-1944.

Tipo: O holótipo na minha coleção.

Embora muito próxima à anterior, e, à primeira vista, apenas uma forma melânica, decidi-me a considerá-la como espécie separada o fato do escutelo ser mais bigiboso e também o da linha mesoscutal (linha média longitudinal do mesonoto) ser fortemente deprimida, sendo que na espécie anterior, em todos os exemplares, é mais elevada que o plano do mesonoto.

20. *Arhysoceble melampoda*, n. sp.

Macho. — Cor preta, mesmo as pernas e abdomen, com os seguintes desenhos amarelos: mandíbulas (exceto o ápice e contornos), labro, clipeo, área supraclipeal, áreas paroculares até

o nível médio dos alvéolos antenais, escapo (apicalmente um pouco fusco), parte superior do pronoto, parte anterior das tégulas (o restante preto), pequena mancha postegular nos bordos laterais do mesonoto, uma faixa larga no escutelo (com estreita margem negra anterior e larga posterior), metanoto (com emarginação negra posterior), uma estria alargada superiormente nas tíbias, faixas basais nos tergitos 2-7, alargadas para os lados em 2-3, decrescendo nos seguintes; ventre preto. Há uma ligeira mancha amarelo-suja no terço distal posterior das tíbias trazeiras.

Pilosidade: branca na face, genas, pleuras, propódeo, esterno e esternitos; algo dourada no clipeo e labro; fusca nas tíbias, tarsos e depressões marginais dos tergitos 3-5, neste com as pontas pálidas, no 6.º formando uma fimbria algo dourada.

Pontuação: muito fina, microscópica, como nas espécies anteriores.

Estrutura: linha mesoscutal elevada; escutelo fortemente deprimido no meio; placa basitibial um pouco menos evidente, menos claramente delimitada que no genótipo.

Dimensões: Comprimento total aproximado 7,5 mm, asa anterior 6,8 mm; largura da cabeça 2,2 mm, do abdomen 2,3 mm.

Habitat: Tacanas, Tuc., R. Arg., P. J. M. Arnau leg., I-1947.

Tipos: O holótipo na minha coleção, um parátipo na coleção Arnau.

Parece pertencer a este novo agrupamento genérico a *Tetrapedia picta* Friese, 1899, que se distingue facilmente pelas pernas pretas, preto-pilosas e sem manchas no tórax, exceto a metade anterior das tégulas. Está mais próxima de *Arh. melampoda*, porém no macho faltam os desenhos amarelos do clipeo e áreas paroculares. Segurança para uni-las e colocá-las neste gênero, só vendo os tipos.

21. *Hemisiella lanipes* (Fabricius, 1775).

Um exemplar, macho. Com o tórax de um amarelo-esverdeado-piloso, exatamente como os exemplares do Paraná e São Paulo.

22. *Ptilothrix relata* (Holmberg, 1903).

Ptilothrix plumata Friese, 1899, Ann. Nat. Holm., Wien, 14: 271, 1 (partim). — Schrottky, 1902, Rev. Mus. Paulista, 5: 535, 1 (partim). — Strand, 1909, Deutsch. Entom. Ztschr., 230 (partim). — Brèthes, 1909, An. Mus. Nac. B. Aires, 19: 222. — Brèthes, 1909, An. Mus. Nac. B. Aires, 19: 253. — Strand, 1910, Zool. Jahrb. Abt. Syst., 29: 510, 63. — Brèthes, 1910, Bull. Soc. Entom. Fr., 212, nota. — Schrottky, 1913, An. Soc. Cl. Arg., 75: 254, partim.
Teleutemnesta relata Holmberg, 1903, An. Mus. Nac. B. Aires, 9: 403, 32.

Energoponus ameghinoi Holmberg, 1903, An. Mus. Nac. B. Aires, 9: 407, 35. — Brèthes, 1909, An. Mus. Nac. B. Aires, 19: 222 (? *Ptilothrix*).
Energoponus strenuus Holmberg, 1903, An. Mus. Nac. B. Aires, 9: 408, 36.
Ptilothrix ameghinoi Brèthes, 1909, An. Mus. Nac. B. Aires, 19: 253. — Schrottky, 1913, An. Soc. Cl. Arg., 75: 254 (variedade).
Ptilothrix relata Brèthes, 1910, Bull. Soc. Entom. Fr., 212 (?). — Schrottky, 1913, An. Soc. Cl. Arg., 75: 254. — Moure, 1944, Pap. Avulsos, S. P., 6: 114.
Ancyloscelsa plumata nigrescens Friese, 1910, Deutsch. Entom. Ztschr., p. 705.

Um exemplar, macho.

Já fiz, anos atrás (1944, Pap. Avulsos, S. P., 6:111-115), a apreciação de várias espécies de *Ptilothrix*, completando agora a sinonímia de mais esta espécie. Infelizmente a descrição da pilosidade da base dos primeiros tergitos não foi feita por Holmberg, nem a ela se referiram os outros autores, o que deixa persistir alguma dúvida quanto a inclusão de *Pt. ameghinoi* na sinonímia de um modo absoluto.

Esta é a espécie que mais se assemelha a *Pt. plumata*, mesmo no colorido das asas e tégulas, pilosidade fulva da cabeça e tórax, na cabeça as vezes um pouco mais fusca, etc. Contudo, as faixas do abdomen estreitadas para os lados e terminando um pouco antes da flexão lateral, dão uma feição muito característica a esta espécie, tornando-a inconfundível com as demais.

Nas considerações feitas em 1944, deixava ainda algumas dúvidas sobre a inclusão absoluta de *Teleutemnesta* como sinônimo de *Ptilothrix*, por não conhecer o genótipo. Últimamente recebi vários exemplares de Rio-Claro, S. P., e também alguns capturados em Curitiba, Pr., de *Teleutemnesta fructifera*, cujo estudo dissipou as últimas dúvidas, fazendo-me assim concordar plenamente com Brèthes na sinonímia apontada em 1910 (Bull. Soc. Ent. Fr., 212).

Schwarz, e posteriormente Michener, enviaram-me vários exemplares de *Emphor bambiformis*. Pelo estudo desses exemplares julgo que *Emphor* talvez possa figurar como gênero à parte, pelo seu aspecto geral, e principalmente pelos gonóstilos não expandidos mas apenas cilíndricos. Contudo, dentro de um critério mais conservador, *bambiformis* deveria passar para *Ptilothrix*, como uma espécie mais afastada do grupo de espécies sul-americanas. A proximidade entre ambos os grupos é bem maior que a existente entre as espécies atribuídas a *Melitoma*, e mais ainda que as de *Diadasia*.

23. *Ptilomelissa bonaërensis* (Holmberg, 1903).

Melissoptila bonaërensis Holmberg, 1903, An. Mus. Nac. B. Aires, 9: 384, 13. — Bertoni & Schrottky, 1910, Zool. Jahrb. Abt. Syst., 29: 593, 36. — Joergensen, 1912, An. Mus. Nac. B. Aires, 22: 317, 460. — Joergensen, 1912, Zool. Jahrb. Abt. Syst., 32: 152, 180. — Schrottky, 1913, An. Soc. Cl. Arg., 75: 258. — Cockerell, 1918, Trans. Amer. Ent. Soc., 44: 32.
Tetralonia tetrazona Friese, 1908, Flora of Fauna, 10: 50, 42. — Joergensen, 1909, Deutsch. Entom. Ztschr., 62.
Ptilomelissa bonaërensis Moure, 1943, Rev. de Entom., Rio, 14: 483.

Três exemplares, duas fêmeas e um macho. Exemplares bem típicos, concordando bem com a descrição de Friese para *tetrazona*.

24. *Melissodes nigroaenea* (Smith, 1879).

Quatro exemplares, três machos e uma fêmea. Na fêmea o tórax negro-piloso, nos machos fulvo-piloso.

O estudo da sinonímia desta espécie é bastante difícil e ainda não cheguei à conclusão do mesmo, deixando por isso de anotá-lo aqui.

Gênero *Peponapis**Colocynthophila*, n. subg.

Mach o. — Labro duas vezes mais largo que longo, truncado anteriormente e com uma pequenina emarginação semi-circular no meio do bordo; mandíbulas de ápice bidentado e mais uma angulosidade vestigial antes do ápice no bordo interno; carena parorbital obsoleta inferiormente, e os lados do clipeo afastados da órbita; espaço malar muito estreito. Antenas relativamente curtas e crenadas inferiormente, com o escapó grosso, um pouco mais curto que o 2.º artigo flagelar, este quase 3 vezes o seu diâmetro, o pedicelo curto e afundado no escapó, o artigo basal duas vezes o próprio diâmetro, quase a metade do 2.º Mesosterno simples, pouco piloso; 1.º par de pernas simples, com as coxas desarmadas; 2.º par normal, com os basitarsos um pouco mais curtos e mais estreitos que a tíbia; 3.º par normal, com a placa basitibial bastante obsoleta, os basitarsos 3/4 da tíbia e mais estreitos; as unhas quase perfeitamente simétricas. Placa pigidial grande, pilosa, largamente truncada no ápice e alargando-se para a base; 7.º e 6.º tergitos sem armação dentiforme, no 6.º apenas com ligeira saliência angulosa; 6.º esternito com fortes carenas bisinuadas laterais, afastadas no ápice e divergindo para a base; 7.º esternito fracamente bilobado, cada lóbulo apenas com a peça latero-basal desenvolvida, fortemente es-

clerosada, glabra, a interno-apical apenas indicada; 8.º esternito bilobado no ápice, porém os lóbulos angulosos, com um mamelão médio pouco elevado; gonóstilos um pouco mais longos que os gonocoxitos, finos, um pouco alargados para o ápice e aí bruscamente voltados para dentro, junto à base para baixo, atingindo o ápice das valvas, que estão enormemente desenvolvidas; em conjunto o aparelho genital mais longo que largo.

Fêmea. — Labro quase semicircular, com pequena emarginação média; palpos labiais com o artículo basal quase duas vezes o 2.º, e o apical um pouco mais curto que o 3.º; maxilas de tipo médio, com os palpos 4-articulados, sendo os três artículos basais sub-iguais e o apical mais curto, quase sem pêlos; mandíbulas bidentadas no ápice; espaço malar muito estreito; clipeo medianamente abaulado, com a margem quase ao nível da tangente inferior das órbitas, os cantos laterais pouco afastados das órbitas e a sutura epistomática superiormente quase reta, em ângulo quase reto, levemente agudo, com a sutura subantenal, esta muito curta; vértice com as áreas oceloculares pouco deprimidas. Antenas com o escapo um pouco mais longo que o artículo basal do flagelo, este quase igualando os dois seguintes juntos, o 4.º maior que o próprio diâmetro. Metanoto quase vertical; mesosterno com pilosidade fina e rala. Asas com o pterostigma pequeno, ligeiramente mais longo que largo; a célula marginal lanceolada, tão longa aproximadamente como a área apical livre; a 2ª submarginal subquadrada, menor que a 1ª, recebendo o 1.º *m-cu* ligeiramente depois do meio; a 1ª medial curto-pedunculada; lóbulo jugal das asas posteriores atingindo o ápice da célula cubital. Pernas anteriores com as coxas simples; basitarsos do 2.º par mais curto que a tíbia e com cerdas grossas não muito densas, curto-plumosas; placa basitibial obsoleta, pilosa; escopa laxa, de cerdas longas moles, longo-laxo-plumosas; basitarsos o duplo do 2.º artículo tarsal, achatados, moderadamente largos, com o processo distal bem desenvolvido; o 2.º artículo maior que os dois seguintes juntos; unhas bifidas com a ponta longa e fina e o dente agudo e mais curto. Abdomen com a área basal do propódeo um pouco abaulada, com a sutura substituída por uma série de pontos, superiormente áspero-ruguloso-pontuada; grádulo do primeiro tergito vestigial; tergitos sem bri-

lho metálico e o 3.º com faixa de pêlos plumosos curtos pre-marginal; placa pigidial de ápice oblongo-oval, transversalmente estriada.

Subgenótipo: *Tetralonia fervens* Smith, 1879.

25. *Peponapis (Colocynthophila) fervens* (Smith, 1879)
n. comb.

- Tetralonia fervens* Smith, 1879, Descr. N. Sp. Hym. Br. Mus., 112, 5. — ? Holmberg, 1903, An. Mus. Nac. B. Aires, 9: 389, 22. — Cockerell, 1905, Trans. Am. Entom. Soc., 31: 326. — Friese, 1906, Iora og Fauna, 8: 91, 14. — Friese, 1908, Flora og Fauna, 10: 44, 34. — Joergensen, 1909, Deutsch. Entom. Ztschr., 61. — Duce, 1910, Deutsch. Entom. Ztschr., 365. — ? Bertoni, 1918, An. Cient. Paraguayos, 11, 3 (6): 217, 38.
Eclectica cucurbitae Holmberg, 1884, An. Soc. Ci. Arg., 18: 203, 4. — Dalla Torre, 1896, Cat. Hymnopt., 10: 252. — Holmberg, 1903, An. Mus. Nac. B. Aires, 9: 387, 17.
Eucera fervens Dalla Torre, 1896, Cat. Hymnopt., 10: 232.
Macrocera fervens Schrottky, 1902, Rev. Mus. Paulista, 5: 516, 1.
Macrocera argentina Schrottky, 1902, An. Mus. Nac. B. Aires, 7: 309, 1. — Schrottky, 1903, An. Soc. Ci. Arg., 55: 181.
Macrocera (Eclectica) cucurbitae Schrottky, 1903, An. Soc. Ci. Arg., 55: 182.
Eclectica fervens Brèthes, 1904, apud Brèthes, 1909.
Tetralonia luteicornis Joergensen, 1909, Deutsch. Entom. Ztschr., p. 224.
Tetralonia joergenseni Jensen Haarup, 1909, Deutsch. Entom. Ztschr., p. 653.
Melissodes fervens Schrottky, 1909, An. Soc. Ci. Arg., 68: 270, 86. — Brèthes, 1909, An. Mus. Nac. B. Aires, 19: 220-221. — Bertoni & Schrottky, 1910, Zool. Jahrb. Abt. Syst., 29: 576, 17. — Joergensen, 1912, An. Mus. Nac. B. Aires, 22: 318, 463. — Joergensen, 1912, Zool. Jahrb. Abt. Syst., 32: 152, 184. — ? Bertoni, 1918, An. Cient. Paraguayos, 11, 3 (6): 217. — Moure, 1941, Arq. Mus. Paranaense, 1: 85.
Melissodes cucurbitae Bertoni, 1918, An. Cient. Paraguayos, 11, 3 (6): 217.

Um exemplar, macho.

Creio ser esta a melhor localização sistemática para esta espécie, dadas as relações notáveis que existem entre a mesma e *Peponapis pruinosa*, podendo-se considerar *P. fervens* como um tipo mais evoluído: palpos max. de 4 artículos, escopa das fêmeas mais reforçada, placa basitibial mais obsoleta particularmente nos machos.

Devido a uma série de diferenças existentes entre esses dois tipos, julguei preferível criar para a presente espécie um novo subgênero.

26. *Mesonychium jenseni* (Friese, 1906).

- Melissa jenseni* Friese, 1906, Flora og Fauna, 8: 101, 59. — Friese, 1908, Flora og Fauna, 10: 91, 112. — Jensen Haarup, 1908, Flora og Fauna, 10: 107, e 110. — Duce, 1908, Rev. d'Entom., Caen, 27: 40. — Joergensen, 1909, Deutsch. Entom. Ztschr., p. 220. — Friese, 1912, Arch. f. Naturgesch., Ad: 201, 209. — Friese, 1912, Deutsch. Entom. Ztschr., p. 304. — Joergensen, 1912, Zool. Jahrb. Abt. Syst., 32: 151, 176. — Joergensen, 1912, An. Mus. Nac. B. Aires, 22: 316, 456. — Schrottky, 1913, An. Soc. Ci. Arg., 75: 265.
Mesonychium (Mesonychium) jenseni Duce, 1912, Zool. Jahrb. Abt. Syst., 34: 196.
Mesonychium jenseni Cockerell, 1920, Ann. Mag. Nat. Hist., (9) 17: 214.

Um exemplar, fêmea.

A localização sistemática do gênero foi feita por Michener (1944, Bull. Am. Mus., 82:288), colocando-o na tribo *Ericrocini*. Convém notar que, Schrottiky, anos antes (1906, An. Cient. Paraguayos, I, n.º 6: 4), para um dos gêneros incluídos neste grupo — *Ctenioschelus* — havia criado a subfamília *Ctenioschelinae*.

Fam. *Bombidae*

27. *Bombus morio* Sw.

32 exemplares, dos quais 1 macho, 7 fêmeas e 24 operárias.

Esta é a designação indicada por Hedicke, para a espécie comum, classificada como *B. kohli*.

28. *Bombus opifex* Smith, 1879.

Um exemplar, operária.

29. *Bombus robustus cinctus* Friese, 1904.

4 exemplares, operárias. Como nota Franklin (1913, Trans. Am. Ent. Soc., 39: 154) a pilosidade do quarto tergito é antes amarelenta. Em dois exemplares quase a totalidade do quarto tergito é preto-pilosa, correspondendo melhor à variedade designada como *steinbachi* por Friese, em 1908.

Fam. *Apidae*

Subf. *Apinae*

30. *Apis mellifera* Linnaeus, 1758.

Um exemplar, operária.

31. *Apis mellifera ligustica* Spinola, 1806.

Cinco exemplares, operárias.

Subf. *Meliponinae*

32. *Melipona favosa baeri* (Vachal, 1904).

Vinte exemplares, operárias. Geralmente há uma estreitíssima interrupção no quinto tergito, e ligeiramente maior no quarto.

Há um exemplar em que são inteiras essas duas faixas abdominais, e em vários outros as dos tergitos 5.º e 6.º

33. *Geotrigona mombuca* Smith, 1863.

Três exemplares, operárias.

Parece ser uma variedade boa: algo menor que os exemplares do Est. de S. Paulo (Rio-Claro e Batatais) e com os pelinhos brancos do clipeo muito curtos, enquanto que nos exemplares brasileiros, acima citados, os pelinhos brancos eretos são tão longos como as cerdas pretas.

Observations sur l'écologie et l'éthologie des Zoraptères. La question de leur vie sociale et de leurs prétendus rapports avec les Termites.

Par C. Delamare Deboutteville, Laboratoire d'Entomologie, Muséum Nationale d'Histoire Naturelle, Paris.

Les premiers auteurs qui étudièrent les Zoraptères n'étaient pas d'accord en ce que concerne leur habitat normal. Jusqu'aux environs de 1920 les chercheurs de l'Ancien Monde en faisaient avant tout des humicoles tandis que ceux du Nouveau Monde, avec une constance assez curieuse, les considéraient comme des inquilins de Termites.

Pour Silvestri (1913) les Zoraptères sont des édaphobiontes superficiels ou terricoles superficiels (edafobionti superficiali). Selon des observations de Green qui lui a confié du matériel ils seraient saproxylophiles (saproxylobionti) à Ceylan. Mais Silvestri ajoute plus bas "le specie di questo genere (*Zorotypus*) vivono nei detriti vegetali particolarmente dove a legno in decomposizione o tra le screpolature del terreno ad una profondità di due a venti centimetri". L'exemplaire de *Zorotypus javanicus* qu'il décrit a été trouvé dans l'humus de Java par Jacobsen.

Dans le Nouveau Monde l'interprétation de l'habitat des *Zorotypus* qui s'offre en premier lieu est toute différente. En 1895 Hubbard récolte des Zoraptères à Haw Creek en Floride dans les galeries anciennes de *Termes* (*Reticulitermes*) *flavipes* Koll. et les prend tout d'abord pour des Campodés qui ne se distinguent des Termites que par leurs pattes plus longues et leur plus grande agilité (!). Plus tard il considère les exemplaires qu'il récolte dans les mêmes conditions comme des Psocoptères énigmatiques. Tous ces exemplaires étudiés par Caudell (1918) ont été décrits sous le nom de *Zorotypus hubbardi* n. sp. Ce Zoraptère fut retrouvé par Th. E. Snyder, le 18-VII-1918 en Virginie en compagnie d'une colonie de *Reticulitermes flavipes* Koll. logée dans une branche. Ces exemplaires avaient été considérés tout d'abord par le Dr. A. Boeving comme des larves de première forme, complètement développés, de *Mantispa* prédatrices. Le 10-IV-1918 Snyder avait trouvé de petits insectes blancs analogues en compagnie d'une colonie de *Prorhinotermes simplex* Hag., dans un tronc pourri de Palétuvier rouge en Floride, des larves et un adulte sous l'écorce pourrie d'un tronc de

Pin de Cuba. Ce tronc était infesté par le *Prorhinotermes simplex* Hag. Il s'agissait là de *Zorotypus snyderi* Caudell (1920) décrit l'année suivante. Enfin pour compléter la liste des captures en position inquiline ou semi-inquiline je noterai ici que le *Z. manni* Caudell (1923) fut trouvé en Bolivie dans les galeries abandonnées de Termites et qu'en 1925 Beebe signale un Zoraptère provenant d'un nid de Termites en Guyane anglaise.

Dès lors tout laissait à penser que, dans le Nouveau Monde, tout au moins, les Zoraptères étaient à peu près constamment associés plus au moins étroitement aux Termites. Mais cependant, dès 1920, Caudell notait que, s'ils sont souvent au voisinage des Termites, ils ne le sont pas obligatoirement et Mann, dans les notes de chasse de sa mission en Bolivie précise que la présence du *Z. manni* Caudell dans les termitières pourrait bien ne tenir qu'à la recherche de conditions de vie analogues.

Tous les travaux ultérieurs sur les Zoraptères d'Amérique et des régions limitrophes en font des terricoles superficiels ou, plus rarement, des saproxylophiles. *Z. longicercatus* Caudell a été trouvé à la Jamaïque dans la terre entre les bases de feuilles de Palmiers (Caudell, 1927). *Z. swezeyi* Caudell vit aux Hawaï dans le bois pourri ainsi que *Z. philippinensis* Gurney (1938) des Philippines, *Z. buxtoni* Karny (1932) des Samoa et *Z. silvestrii* Karny de l'île Mentawai dans les Indes Néerlandaises. *Z. barberi* Gurney (1938) d'Amérique Centrale, Cocos Island, aurait été trouvé "under... debris back on beach". Enfin *Z. hubbardi* Caudell est, selon Gurney (1938), un habitant des sciures et des bois en décomposition.

Je noterai ici mes observations sur l'écologie des Zoraptères d'Afrique, leurs relations avec les Termites et leur prétendue vie sociale. Nul n'ayant retrouvé de Zoraptères en Afrique depuis la découverte de l'ordre par Silvestri en 1913, ces quelques notes seront une première contribution à l'histoire naturelle de ces animaux et constitueront une mise au point utile. L'espèce étudiée ici est celle qui a servi de type à Silvestri :

Zorotypus guineensis Silv.

Ecologie

Nous avons pu constater qu'en Côte d'Ivoire les Zoraptères sont toujours saproxylophiles. Malgré des recherches quantitatives et qualitatives précises sur la faune humicole et terricole de la

forêt du Banco, près d'Abidjan, je ne les ai jamais trouvés dans ces biotopes. S'ils vont parfois dans les feuilles mortes en sous-bois ce ne peut donc être que très exceptionnellement car je les y ai cherchés en vain.

Beaucoup d'arbres morts ont été prospectés. Rares sont ceux qui abritaient des Zoraptères. Ceci m'incline à penser que les troncs en décomposition ne constituent pour eux un biotope favorable que pendant un moment très fugace de leur évolution, suffisant cependant pour permettre la croissance de plusieurs générations de l'insecte.

La vie des Zoraptères n'est possible sur un arbre mort qu'après le début du décollement de l'écorce et avant la chute des plaques ainsi formées. Ce sont des infra-corticaux typiques, hygrophiles et vigoureusement lucifuges.

La face supérieure des troncs, moins humide que les faces latérales, présente en général une décomposition infracorticole moins avancée que celles-ci. Si le travail myco-bactérien y est moins rapide qu'ailleurs, on peut constater, par contre, qu'elle reste longtemps le domaine des Termites, et, à leur suite, des Fourmis.

La face inférieure en contact avec le sol ou voisine de lui est, par contre, beaucoup plus rapidement désagrégée que les faces latérales par suite de sa constante humidité. Cet excès d'humidité n'y autorise la présence que d'une faune appauvrie constituée essentiellement par quelques Gastéropodes et des Diplopodes aux mouvements agiles. La flore mycologique est très riche.

Les Zoraptères fuient autant les zones trop humides que les zones trop sèches. On constate qu'ils se trouvent surtout sous les écorces des faces latérales du tronc. Ils s'écartent des endroits où le mycelium blanc est trop abondant. Ils fuient également les zones sèches supérieures où fréquentent surtout les Termites, les Fourmis et leurs commensaux.

Lorsqu'une plaque d'écorce est soulevée depuis quelques jours, l'eau de pluie peut pénétrer dans l'espace infracorticole. On assiste alors à une augmentation très nette du nombre des Iso-podes par suite de l'augmentation d'humidité et, concurremment, à la disparition totale des Zoraptères.

En compagnie de ceux-ci on trouve toujours une faunule diversifiée. Je citerai en particulier: *Japyx* sp., *Lepidocampa juradii afra* Silv. (Diploures), larve du *Sphaerostylus luteus* (Carabique de la famille des Ozaenidae), des larves de Pselaphides, le Staphylin *Conosoma obesum* Boh., des Nitidulides du genre *Cychranus*, des Acariens, des Myriapodes variés, des Symphytes, des Isopodes et des Gasteropodes. On trouve également en grand nombre les Collemboles *Cyphoderus interpositus* Denis et *Salina bidentata* Handschin, avec des *Paronella* et des *Lepidocyrtus* appartenant à des espèces nouvelles, ainsi qu'avec le Pauropode *Allopauropus pachypus* Remy n. sp. Il est clair qu'il s'agit là de la population diversifiée d'un biotope et non d'une association au sens strict du mot. Les divers métabolismes sont totalement indépendants les uns des autres.

Signalons qu'un Hémiptère Henicocephalide, *Hoplitocoris camerunensis* Jeannel semble être un prédateur constant des Zorotypus.

Abondance

Pendant assez longtemps les Zoraptères ont été considérés, à tort, comme des Insectes relativement rares. En fait nos recherches en Côte d'Ivoire infirment cette opinion. Seul le peu d'attention accordé à la microfaune en général est responsable de la rareté des captures. Gurney a trouvé une assez grande abondance de *Zorotypus* aux environs de Washington en une station où leur importation doit être récente. Ils se sont acclimatés là dans de vastes dépôts de sciure de bois. En forêt de basse Côte d'Ivoire nous avons pu capturer sous 6m² d'écorce d'un arbre favorable, 62 Zoraptères à tous les stades. Si pour une telle récolte il fallait l'attention soutenue de trois chercheurs pendant deux heures, il est néanmoins prouvé que les Zoraptères sont loin d'être rares.

Vie sociale

Pour Caudell (1920) les *Zorotypus* sont des insectes sociaux (*Z. hubbardi* Caudell et *Z. snyderi* Caudell). Cette opinion provisoire de l'auteur rejetée par lui dans ses travaux ultérieurs a été adoptée assez souvent. Il convient de l'abandonner définitivement. Selon des observations faites sur place, il n'y a pas

trace de vie sociale chez les Zoraptères. Les individus sont juxtaposés dans les rares biotopes favorables à leur développement mais ils sont toujours assez éloignés les uns des autres et s'ignorent. En élevage plusieurs individus adultes aptères des deux sexes passent à côté les uns des autres sans attirance spéciale. Quand, par hasard, ils se rencontrent ils se palpent des antennes de la même façon et sans plus d'insistance que lorsqu'ils palpent le support en avançant. En compagnie de larves à tous les stades et de nymphes à fourreaux alaires leur comportement est identique. Il ne se forme jamais d'aggrégats durables d'individus et seul le hasard préside à leurs rencontres. L'existence d'un polymorphisme assez accentué, avec adultes ailés, adultes aptères et adultes néoténiques et les divers formes de larves qui leur correspondent, a pu laisser croire à un système de castes comparables à celles des Termites. La complexité du cycle vital est certainement pour beaucoup responsable de l'attribution erronée d'une vie sociale aux Zoraptères.

Relations entre Zoraptères et Termites

Ce que nous avons dit plus haut des exigences écologiques des Zoraptères écarte toute liaison réelle avec les Termites. En aucun cas les Zoraptères ne sont inquilins de ceux-ci. Les galeries de Termites et les zones infracorticales fréquentées par les Zoraptères sont toujours bien distinctes les unes des autres topographiquement. Les *Zorotypus* ne se trouvent que là où l'écorce est complètement décollée. Les Termites parcourent des galeries bien closes où la microfaune infra-corticale ne pénètre qu'à un stade avancé de décomposition, stade auquel les Termites abandonnent progressivement ces trop vieilles galeries. Dans les galeries des *Termes pauperans* (Termitinae) et de *Coptotermes* divers le Collembole *Cyphoderus interpositus* Denis pénètre cependant très fréquemment. Mais les Zoraptères sont rares dans le voisinage des galeries qui sont dans des zones de l'écorce un peu trop sèches pour eux.

En définitive tout ce que l'on peut dire de la relation entre Zoraptères et Termites est qu'ils correspondent les uns comme les autres à un certain stade de décomposition de l'arbre. Leur lien

transitoire est d'ordre écologique et non éthologique. C'est une juxtaposition et non une association même très lâche. Il n'y a pratiquement aucune relation topographique. Le Zoraptère n'utilise en rien la vie du Termite, pas même indirectement. Il vit presque exclusivement du travail cryptogamique et, éventuellement pour une faible part, de la faune acarienne ainsi que je l'indique ailleurs.

Bibliographie.

- Caudell, 1920, Zoraptera not an apterous order. — Proc. Ent. Soc. Wash., vol. 22 (5), pp. 84-97, 4 fgs.
- Gurney, 1938, A synopsis of the order Zoraptera, with notes on the biology of *Zorotypus hubbardi* Caudell. — Proc. Ent. Soc. Wash., vol. 40 (3), pp. 57-87, 4 pls.
- Silvestri, 1913, Descrizione di un nuovo ordine di insetti. — Bol. Lab. Zool. Gen. Agr. Portici, vol. 7, pp. 193-209, 13 fgs.

Four New South American Melolonthine Scarab Beetles.

By Lawrence W. Saylor,
Research Associate, California Academy of Sciences.

The new species included herein are from Peru, Brazil and Argentina, and have been awaiting description for a number of years. The types are all in the Saylor Collection of Scarab Beetles, which has been presented to the California Academy of Sciences.

Phyllophaga (Phyllophaga) limasa, new species

Male: Oblong-oval, but little wider behind. Color rufo-castaneous, the thorax and head more rufous, to rufopiceous, and slightly shining above; the elytra, pygidium and abdomen usually noticeably pruinose. Pilose above. Head with front convex, coarsely, densely and contiguously punctate, with short erect pile, the punctures of vertex a little smaller. Clypeus short, transverse, strongly reflexed and truncate, sides also reflexed and the angles very broadly rounded; disc coarsely and densely punctate, with very short erect hairs. Antenna usually 9-segmented, rarely 10-segmented; funicle castaneous; club testaceous, short, and usually subequal to funicle; 4th antennal segment spinose within. Thorax with sides dilated at middle, and straight and ciliate, the hind angles obtuse but sharp, the front angles prolonged and rectangular, varying to slightly acute; entire disc coarsely and densely punctate, the punctures separated by about once their diameters; the disc with very dense erect hairs of differing lengths, most of them short, some longer and a number of them very long. The mid-disc of the thorax possesses a small to moderate, irregular, impunctate area. Scutellum finely and densely punctate. Elytra without well-marked striae, the sutural striae flat and evanescent basally; disc finely and very densely punctate, with dense hairs as on thorax, the longest hairs near base and scutellum. Pygidium convex; somewhat coarsely, entirely and densely punctate, faintly rugose, and with very short, erect hairs and longer hairs intermixed, but with no really long hairs present; apex truncate and ciliate. Abdomen flattened at middle; sutures of sternites 2-5 evanescent at middle of the segments, entire disc finely and densely punctate, and with short erect hairs; 5th sternite much longer than 4th, with a large, triangular-shaped area at middle composed of dense, rather coarse, transverse granules, apex of segment somewhat triangularly impressed;

midapex of 5th distinctly tho narrowly interrupted (usually), at times merely narrowly foveate; 6th sternite $2/3$ the length of 5th, strongly carinate and thickened and smooth along entire basal margin, the apical margin also carinate, ciliate and interrupted at the middle by the strong, median, longitudinal sulcus; disc of 6th transversely impressed, rugose, densely punctate, and with short and long, erect hairs intermixed. Hind spurs free, graceful, first tarsal segment shorter than second. Tarsal claw long, with a short triangular, median tooth, the base very obtusely dilated. Front tarsal segments slightly spinose within. Front femora coarsely and closely punctate dorsally. Genitalia symmetrical, of the complete ring-shaped type. Length 18-22 mm. Width 8-10.5 mm. The Holotype male and 4 male paratypes are from "Near Sani Beni, Peru, 1935", and were given to me by the collector Mr. Felix Woytkowski. An additional male is from "Upper Rio Huallaga, Peru, XI-25-35". I also leave a male from "Chanchamayo, Peru" undesignated as a type, as it appears to be this species but possesses hardly-produced front thoracic angles, and the longer hair of the thorax is much denser and more obvious.

The species is very near to *P. peruana* (Moser) but differs in the non-sinuate thorax and the much more distinct thoracic angles.

Phyllophaga (Phyllophaga) grancha, new species

Male: Form oblong-oval, color castaneorufous, the head and thorax rufous, and shining, the elytra pruinose; pilose above. Head with front very convex, and densely, coarsely, rugosely and contiguously punctate, with short erect hairs. Clypeus short and very transverse, the apex truncate and slightly reflexed, and the angles very broadly rounded; disc coarsely, densely and entirely punctured. Antenna very small and 10-segmented; the funicle barely longer than the scape; club ovate, and barely equal to the funicle. Thorax subparallel at sides behind the submedian, very obtuse dilation, the sides and apex ciliate, the lateral margins finely crenate; front angles slightly acute and produced, hind angles nearly rectangular; disc with moderately coarse punctures separated by once or more their diameters, the punctures rather regularly placed except on central disc and varying slightly in size; the entire disc is covered with short semierect hairs and many very long erect hairs. Scutellum densely, finely and

setigerously punctate. Elytra covered with short suberect hairs and with several dozen very long erect hairs in scutellar region; striae other than sutural not obvious; disc very densely, entirely and somewhat finely punctured. Pygidium convex, polished at apex, pruinose at base, the apex thickened, ciliate and subrounded; disc very densely and somewhat finely punctate, the apical fifth sparsely punctured, the entire surface with dense, minute, erect hairs and short erect hairs intermixed. Abdomen polished, flattened at middle, and very densely and finely punctate, with short procumbent pile; 4th sternite with sparse transverse granules at middle; 5th sternite continuing the granules, which are most dense at middle base of the sternite; 5th transversely impressed in apical fourth, and middle apex also slightly foveate; 6th sternite half the length of the 5th, and transversely thickened at base, ciliate and subcarinate at apex and the disc flattened; disc of 6th is finely and sparsely puncto-granulate and has erect hairs, the middle being slightly longitudinally impressed. Hind spurs free, graceful, first segment hind tarsus shorter than second. Claws moderately long, with a sharp, slightly-reflexed, submedian tooth, and the base very obtusely dilated. Front tarsi normal. Genitalia short and of the complete ring-shaped type, bilaterally symmetrical and in lateral view the two apices of the lateral lobes are reflexed below. Length 16 m. Width 8 mm.

The unique male holotype in the Saylor Collection is from "Gran Chaco, South America". The species is related to *P. cuyabana* (Moser) but among other things lacks the obtuse thoracic angles of that species.

Phyllophaga (Phyllophaga) chada, new species

Male: Form oblong-oval, color rufocastaneous, with the head and thorax rufous and shining and the elytra pruinose. The species is very close to *grancha* Saylor described above, and all characters of that species will fit this species except that: the clypeus is slightly longer and semicircular (nearly) in outline; the antenna is 10-segmented but quite large, the funicle being longer than the scape, and the club slightly longer than the entire stem; the front thoracic angles are rectangular and the discal puncturation is closer near the hind angles; the pygidium is convex, with fine and dense punctures in basal third and the remainder of disc with coarse not dense (usually) punctures; abdomen with the granulate punctures extending from the 2nd

to the 6th sternites; first segment of hind tarsus about $2/3$ length of the second; and the tarsal tooth is slightly less median (more basal), and is a little more inclined basally. Length 16 mm. Width 7.5-8 mm.

The Holotype and paratype, both males, are from "Chapada, Brazil". The species is most closely related to *grancha* Saylor, with which it is compared.

Phyllophaga (Phyllophaga) fesina, new species

Male: Oblong, wider behind. Color castaneorufus, the head and thorax rufous and shining, the elytra pruinose. Pilose above. Head small, the front very convex, and coarsely, rugosely and entirely punctured, with erect hairs. Clypeus short and transverse, very nearly semicircular in outline, the apex truncate and reflexed, the angles very broadly rounded; disc with coarse, moderately dense punctures and very short erect hair. Antenna 10-segmented, (nearly 9 on one side), testaceous, and the club small and ovate and barely equal to the funicle. Thorax with sides straight, ciliate laterally and apically, sides crenate and subparallel behind the obtuse median dilation; front angles rather blunt but obvious, hind angles noticeable but obtuse; disc with moderately dense and coarse punctures and with much finer punctures (especially at sides and in apical half) intercalated, with short suberect hairs and very long, erect, brownish hairs intermixed. Scutellum pilosely punctate. Elytra very densely and finely punctured, with very short erect griseous pile, and sparse erect longer pile, the latter especially at base and along suture; striae other than sutural not well developed. Pygidium slightly shining, the disc very densely and somewhat coarsely punctate, with dense, very short hairs mixed with the sparser longer hairs. Abdomen convex, subpruinose and griseopilose, the hairs short and subprocumbent; 2-5th sternites with sparse granules at middle, these thickest on the 4th and 5th; 5th sternite strongly and transversely impressed in apical third, and slightly longitudinally sulcate at middle apex; 6th sternite half length of 5th, transversely impressed, finely and densely setigerously punctate, and deeply, longitudinally impressed at middle. Hind tibial spurs free, graceful; first tarsal segment distinctly shorter than second. Claw with a sharp, triangular, submedian tooth which is slightly inclined basally and the basal dilation is very obtuse and hardly obvious. Front tarsi faintly spined on inner apex. Genitalia

symmetrical, of the complete ring-shaped type as in *grancha* Saylor.

F e m a l e : Same as male except as follows: Antennal club ovate and barely equal to funicle; front thoracic angles rectangular; elytra in apical region and near suture with a few dozen very large punctures bearing longer hairs; pygidium convex, flattened at middle, the disc very densely punctate, with short and longer hairs intermixed; abdomen not granulate at middle and 5th sternite not impressed, the 6th sternite more than half as long as 5th and punctured as rest of abdomen; claws shorter, the tooth more inclined basally. Length 17 mm. Width 9 mm.

The Holotype male and Allotype female are from "Santa Fesino, Chaco, Argentina, collected in September". The species resembles *P. peruana* (Moser) but the thoracic sides are not sinuate. The differences in the front thoracic angles between the two sexes of *fesina* is interesting, but they certainly seem to be the same species.

Ueber die richtige Stellung der Gattungen *Dolichogaster* Macq. (Mydidae) und *Megascelus* Philippi (Apioceridae) (Diptera).

Von Prof. Dr. S. J. P a r a m o n o w, Canberra, Australien.

Ueber die Gattungen *Dolichogaster* und *Megascelus* existiert in der Literatur eine sehr grosse Konfusion. Manche Autoren, sogar die neuesten (Séguy, 1938; Reed et Ruiz, 1941), betrachten diese Gattungen als Synonyma und rechnen die Art *nigricornis* Phil. ganz unrichtig der Gattung *Dolichogaster* zu. In Wirklichkeit gehoert die Gattung *Dolichogaster* Macq. mit der typischen Art *D. brevicornis* Wied. zur Familie Mydidae, und die Gattung *Megascelus* Phil. mit der typischen Art *M. nigricornis* zur Familie Apioceridae. Die Art *Dolichogaster nigricornis* Phil. ist eine kuenstliche Art, sozusagen ein rein nomenklatorisches Artefaktum.

Die Originalbeschreibung von Macquart (1848) lautet:

"Face peu saillante, brièvement velue, mais dénudée de moustache. Antennes à peine aussi longues que la tête; premier article court; deuxième fort court, troisième conique, peu allongé, double du premier; les quatrième et cinquième de la longueur des trois premiers réunis, formant ensemble une masse cordiforme, assez large à la base, obtusément pointue à

l'extrémité, tomenteuse, un peu comprimée sur les côtés. Abdomen très long. Jambes postérieures non terminées par une pointe. Ailes n'atteignant pas l'extrémité de l'abdomen, assez large; une petite cellule stigmatique près de l'extrémité de la médiastine; marginale et les deux sous-marginales fermées, aboutissant à cette petite cellule; deuxième sous-marginale appendiculée; première postérieure ouverte, aboutissant au bord extérieur; deuxième, troisième et cinquième confondues en une seule, le long du bord postérieur et intérieur; quatrième fermée.

Le Mydas brevicornis Wied. nous paraît devoir former dans cette tribu un genre distinct caractérisé comme nous venons de le faire. La forme des antennes, la longueur de l'abdomen, la brièveté relative des ailes et la disposition de leurs nervures justifient cette séparation; la petite cellule à laquelle viennent aboutir les marginale et sous-marginales est singulière et n'a d'analogie qu'avec la stigmatique que présente un grand nombre d'autres Diptères. Le nom générique exprime la longueur de l'abdomen.

Dolichogaster brevicornis. Niger, glaber. Abdominis segmentis tertio et quarto flavido-diaphanis. Alis fusco-notatis. (tab. 2, fig. 2).

Mydas brevicornis Wied. Long 11 lin. ♂. Wiedemann a décrit la femelle; nous avons observé le mâle. Le noir du corps est bleuâtre; les crochets de l'armure copulatrice sont petits; les cuillerons sont noirâtres; les ailes ont un bord extérieur brun, à reflets violets et une grande tache d'un brun moins foncé, avant l'extrémité. Du Brésil. Collection de M. Bigot."

Die beigegebene Tafel zeigt uns auch ein typisches Geader der Familie Mydidae mit den parallel dem Hinterrand des Flügels verlaufenden Adern, mit einer sehr eigentümlichen Position der gewöhnlichen Querader (r-m) usw. Die Figuren 2a, 2b zeigen auch eine sehr charakteristische Form und Struktur der Fühler: die Fühler sind 4-gliedrig, die Keule ist an der Basis sehr eigenartig eingeschnürt usw.

Die Originalbeschreibung von Philippi lautet:

"*Megascelus Philippi* (*megas* = gross und *skelos* = Schenkel). Caput semiglobosum. Oculi (in utroque sexu ?) distantes, glabri. Vertex vix concavus. Antennae brevissimae; articuli duo basales brevissimi, tertius antecedentes simul sumptos ter aequans; crassus, oviformis, apice productus et oblique truncatus. Facies nuda. Proboscis brevis. Abdomen cylindricum, segmentorum octo. Alarum cellulae fere omnes (excepta quarta postica) clausae, discoidales duae (v. fig.). Pedes elongati (femora postica clavata), setulis brevibus vestiti; ungues parvi; pulvilli duo.

Der Verlauf der Flügeladern ist verschieden von *Mydas*, und schliesst sich an mein Genus *Anypenus* (s. unter *Asilici*) an (Synonym der Gattung *Apiocera*, S. P.), mit welchem Geschlechte auch die kurzen Fühler übereinkommen, sowie der Mangel des Knebelbarts, während der schlanke Körper, die schlanken kaum bewehrten Beine und der ganze Habitus an *Mydas* erinnern. Von den *Mydasiis* findet ein Uebergang durch *Megascelus* und *Anypenus* zu den *Asilicis* statt. Ist etwa *Mydas iopterus* Wied. ein *Megascelus*?

Megascelus nigricornis Ph. P. antennis nigris; corpore nigro, segmentis 3, 4, 5, 6, 7 addominis postice helveto-limbatis; alis infuscatis, antice basi lutescentibus; pedibus rufis, tarsis nigricantibus. Long. 5 lin., extens. alar. 7½ lin. V. Siehe Abbild. E. coll. ornat. Ferd. Paulsen.

Die Augen nehmen fast den ganzen halbkugeligen Kopf ein; sie stehen maessig entfernt und sind dunkelbraun, fast schwarz. Der Scheitel ist kaum ausgehoeht, und traegt zwei Punktaugen; in grosser Entfernung davon, in der Mitte zwischen Scheitel und Fuehler, steht das dritte. Die Fuehler entspringen in der halben Hoehe des Kopfes. Stirne, Scheitel und Hinterkopf sind ziemlich lang aber nicht dicht behaart, wogegen das Untergesicht vollkommen kahl ist. Thorax, Schildchen und Hinterleib sind kahl zu nennen, nur der Hals und das letzte Segment des Hinterleibs tragen Haerchen. Die vorderen Ecken der Brust treten spitz hervor; die Seiten derselben, sowie der Hinterkopf schimmern grau. Die Beine sind mit kurzen, anliegenden Haerchen bekleidet, die Schienen ausserdem mit einzelnen kurzen Boerstchen. Die Hinterbeine sind verlaengert, ihre Schenkel keulenfoermig, auf der unteren Seite mit einigen kurzen, wenig auffallenden Dornen versehen; die Spitze der Hinterschienen ist ebenfalls schwaerzlich."

An der beigegebenen Tafel von Philippi sehen wir ganz klar, dass das Geaeder von *Megascelus nigricornis* ganz anders ist als bei *Dolichogaster*, obgleich manche konvergenten Einzelheiten existieren. Es ist typisch fuer die Familie Apioceridae und dem der Gattung *Neorhaphiomidas* Norris von Australien fast gleich. Die Analzelle ist geschlossen (bei *Dolichogaster* ist sie geoeffnet), in den Hinterrand des Fluegels muendet die Ader m_{3-4} . Die Lage der Querader $r-m$, die Form der Zelle unter der Discoidalzelle usw. weichen von *Dolichogaster brevicornis* aeusserst stark ab. Die Fuehler sind 3-gliedrig, das letzte Glied ist nicht keulenfoermig, sondern gross, laenglich-eifoermig, usw.

Ich halte es fuer ueberfluessig, andere Einzelheiten anzu-fuehren; sie sind ersichtlich aus den beigegebenen Originalbeschreibungen, sowie aus anderen Literaturquellen (s. unten).

Nun wenden wir uns zu der Frage, wie solche Konfusion entstanden ist. Der erst Autor, welcher den Fehler gemacht hat, war Kertész, der im "Catalogus Dipteriorum", IV, 1909, p. 47 die Gattung *Megascelus* (1865) als Synonym von *Dolichogaster* betrachtet hat; andere Autoren sind ihm unkritisch gefolgt.

Doch schon im Jahre 1909 hat Verrall in seinem Werk "British Flies", vol. V, die Gattung *Megascelus* fast richtig interpretiert. Er hat dieselbe fuer eine selbstaendige, der Familie Mydidae angehoerende Gattung gehalten (S. 605-606). Er hat unter anderem auch eine vortreffliche Abbildung des Fluegelgeaeders gegeben (fig. 333) und auf den Seiten 23-24 die un-normale Stellung der Gattung *Megascelus* unter den Gattungen der Mydiden angezeigt, ausserdem hat er auf die Aehnlichkeit des Geaeders etc. mit dem der Apioceriden aufmerksam gemacht.

Im selben Jahr hat Hermann (Deutsch. Ent. Zeitschr., 1909, Beiheft) die richtige systematische Stellung endlich

festgestellt. Er hat auf der Tafel 7, Fig. 7 sowie in den Textfiguren 5 und 7 sehr wichtige Einzelheiten der Struktur gegeben. Auch im Text (S. 109-122) finden wir ausreichende Angaben ueber *Megascelus nigricornis* und die Gattung *Dolichogaster*; die erste Art hat er in beiden Geschlechter studiert.

Leider wurden die Angaben von Verrall und Hermann von Séguy ausser Acht gelassen (Revista Chilena de Historia Natural, XLII, 1938) und auch E. Reed und F. Ruiz (Revista de Entomologia, XII, fasc. 3, 1941) haben den Fehler von Kertész nicht korrigiert.

Im selben Jahr hat jedoch Mont Gazier (American Midland Naturalist, XXV, 1941, 591) die richtige Stellung des *Megascelus* unter den Apioceriden angezeigt. In meiner Arbeit ueber die australischen Apioceriden (Manuscript) habe ich gezeigt, dass die Gattung *Megascelus* in Australien eine aeusserst nahe Verwandte hat: *Neorhaphiomidas* Norris (Journal Roy. Soc. West. Austr. XXII, 1935-36); die von mir beschriebenen neuen Arten naehern diese Gattungen noch mehr, doch sind sie sicher verschieden.

Nun ist es die Aufgabe der suedamerikanischen Dipterologen, die beiden Gattungen *Dolichogaster* und *Megascelus* ausreichernd zu beschreiben.

Sur le Genre *Penquistus* (Dipt. Anthomyzidae).

Par E. Séguy, Muséum d'Histoire Naturelle de Paris.

Le genre *Penquistus* a été décrit par Kieffer en 1906, dans les Annales de la Société scientifique de Bruxelles (XXX, 2, p. 349) pour un moucheron capturé, par M. Pablo Herbst, au Chili, dans les environs de Concepción. Cet insecte, probablement un mâle immature, que F. Meunier considérait comme un exemplaire "téatologique", diffère par des caractères chromatiques et par la conformation de la tête de celui qui est décrit ci-après (cf. aussi Malloch, l. c., p. 390).

Ce Diptère a une grande ressemblance avec le *Geomyza sabulosa* Hal. d'Europe. Il en diffère par le troisième article antennaire beaucoup plus court, par la composition de la tête et du triangle ocellaire qui sont beaucoup plus développés; la nervure médiane postérieure du *Geomyza sabulosa* est également beaucoup plus courte. Les deux espèces, quoique congénères et

très voisines par la forme et la couleur, sont incontestablement différentes.

On sait que M. L. Czerny a établi pour les *Geomyza sabulosa* Hal. et *Oldenbergi* Cz. le genre *Striphosoma* (Fliegen, 54 b, 1928, p. 6), qu'il distingue par la robustesse du corps et par la conformation alaire, la nervation est incomplète, les nervures Sc , R_{2-3} , Cu_1 et A n'atteignent pas la marge de l'aile chez *Oldenbergi*, et l'aile est réduite à une lanière lancéolée chez *sabulosa*.

Voici la description du *Penquistus cursor* établie sur un exemplaire conservé au Muséum de Paris et rapporté du Chili par M. Gay. Cette description permettra la comparaison des deux formes *Striphosoma* et *Penquistus* soupçonnées d'identité.

Tête d'un brun noir, sauf les orbites et les gênes jaunâtres. Occiput avec une large tache cordiforme argentée brillante. Espace interoculaire trapézien, égal à la largeur de l'oeil au niveau du vertex, aussi largi que le 3e article antennaire, à la base des antennes. Triangle ocellaire luisant, la pointe antérieure atteignant presque la lunule. Deux soies ocellaires fortes, deux orbitales, deux verticales de chaque côté, toutes à peu près subégales. Yeux pratiquement nus, à facettes élargies dans la partie moyenne. Face étroite, jaune. Gênes et péristome linéaires. Trompe brune, robuste; palpes en baguettes minces. Antennes d'un blanc jaunâtre, troisième article arrondi, longuement cilié sur son bord externe, deux fois plus long que le deuxième; chète noir, épaissi à la base, pubescent.

Thorax d'un brun noir, couvert d'une pruinose squamiforme, jaunâtre. Une soie humérale, deux notopleurales, une postalaire, deux dorsales postérieures, la postérieure plus forte. Quelques chétules dorsocentraux antérieurs régulièrement rangés; deux rangées irrégulières de chètes acrosticaux surtout antérieurs; scutellum avec deux macrochètes, un de chaque côté et une série de chétules latéraux rapprochés de la base. Pleures lisants, concolores avec le mésonotum.

Pattes longues et robustes, entièrement jaunes, à pilosité et soies brunes. Griffes noires. Balanciers réduits à un moignon basal brun-jaune. Ailes lancéolées, aussi longues que le mésonotum, quatre fois plus longues que larges. Nervation réduite à une sous-costale vestigiale, visible seulement à la base, radiale courte, robuste, médiane antérieure rectiligne prolongée jusqu'à

l'extrémité de l'aile, médiane postérieure parallèle et rapprochée de la précédente; alule indiquée à la base de l'aile.

Abdomen légèrement plus long que le thorax, d'un noir luisant; pilosité et macrochètes noirs sur la face tergale, jaunes sur la face sternale, pilosité sternale jaune.

Long. 2 mm.

Chili, (Gay).

Cette espèce est de couleur variable. Les exemplaires examinés par M. M a l l o c h ont les pleures jaunes, comme les côtés et la face sternale de l'abdomen.

En 1916, B e z z i (Natura, VII, 1916, p. 177), place le *Penquistus cursor* parmi les *Geomyzidae* sans faire de rapprochement. Mais M. J. R. M a l l o c h, en 1933, dans son étude des Diptères de la Patagonie et du Chili méridional, p. 390, fait du genre *Penquistus* un synonyme du genre *Anthomyza*. Il rapproche le *P. cursor* des *Anthomyza tenuis* Loew et *terminalis* Loew de l'Amérique septentrionale. Si les caractères du genre *Striphosoma* sont reconnus valables après l'examen d'un plus grand nombre d'échantillons, ce nom devra être changé en celui de *Penquistus* avec comme génotype *P. cursor* Kieffer.

Bibliographie

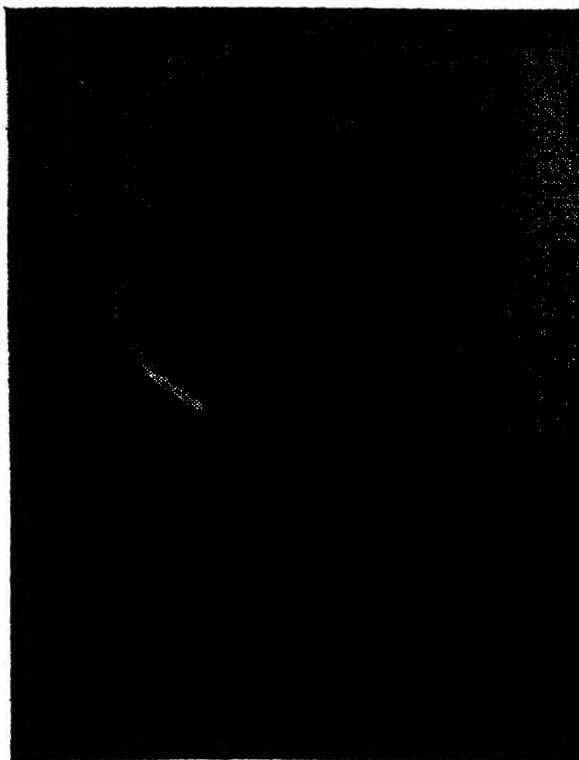
- B e z z i, M., 1916, Riduzione e scomparsa delle ali negli insetti Ditteri. — Riv. Sc. Nat., Natura, VII, pp. 85-182, 11 figs.
- C z e r n y, L., 1928, Die Fliegen der Palaearktischen Region, 54 b. Anthomyzidae. Stuttgart (Schweizerbart), pp. 1-8, 11 figs.
- K i e f f e r, J. J., 1906, Description d'un genre nouveau et de quelques espèces nouvelles de Diptères de l'Amérique du Sud. — Ann. Soc. Scientifique Bruxelles, XXX, 2, p. 350, figs.
- M a l l o c h, J. R., 1933, Diptera of Patagonia and South Chile, part. VI, fasc. 4, Acalypttrata. — London (B. M.), pp. 177-391, pl. II-VII (p. 301).
- S é g u y, E., 1934, Faune de France, 28, Diptères Muscidae Acalypteræ et Scatophagidae, pp. 26, 301 et 304, fig. 419.

PERSONALIA.

All men of science are brothers.
Edgeworth Davis, 1914.

Prof. Dr. August Reichensperger.

Am 8. Januar 1948 vollendete Prof. Dr. August Reichensperger, Ordinarius fuer Zoologie und Direktor des Zoologischen Instituts der Universitaet Bonn, sein 70. Lebensjahr. Zahllose Freunde und Schueler des In- und Auslandes, Kollegen und Studenten nahmen dies zum Anlass, ihm an diesem Tage noch viele Jahre frohen, befriedigenden Schaffens



Prof. Dr. A. Reichensperger

zu wuenschen. Als Sohn rheinischer Eltern wurde unser Jubilar in Koblenz geboren, studierte in Muenster und Bonn Naturwissenschaften und promovierte bei Ludwig ueber die Anatomie eines Crinoiden der Agassiz-Expedition. Auch seine folgenden Publikationen, insbesondere seine vielbeachtete Habilitationsschrift ueber die Druesengebilde der Ophiuren behandelten die Echinodermen, deren weltbekannter Spezialist Ludwig war. Bald jedoch wandte sich Reichensperger einem neuen Arbeitsgebiet zu. Den aeusseren Anlass hierzu bildete seine 1919 erfolgte Berufung nach Freiburg in der Schweiz. Schon als Student hatte sich Reichensperger

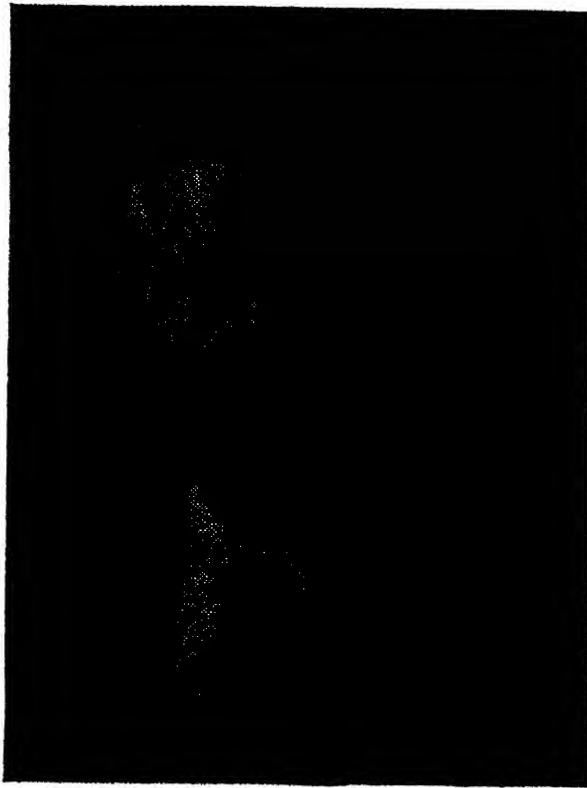
zusammen mit seinem im Kriege gefallenen Freunde Le Roy mit besonderer Liebe der heimischen Fauna gewidmet. Der Aufenthalt in der Schweiz gab ihm nun reichlich Gelegenheit, diese faunistischen Studien zu erweitern und zu vertiefen. So wurde sein Herz in besonderem Masse fuer die Entomologie gewonnen, einem Forschungsgebiet, dem er auch nach seiner Berufung nach Bonn im Jahre 1928, wo er als Nachfolger Hesse's die Leitung des Zoologischen Instituts uebernahm, seine ganze Arbeitskraft widmete. Waehrend seine zahlreichen Schueler, unter denen sich auch viele Auslaender befanden, die mannigfachen Probleme der Insektenkunde in morphologischer, physiologischer und biologischer Beziehung behandelten, wandte sich Reichensperger in erster Linie dem Studium der Ameisen- und Termitengaeeste (Myrmecophilen, Termitophilen) zu, deren interessante Anpassungs- und Konvergenzerscheinungen, Biologie und Systematik er in zahlreichen, hervorragend illustrierten Arbeiten behandelte. Durch das staendige Zusammenwirken mit einer grossen Zahl weltweit verstreuter Sammelfreunde und bedeutender wissenschaftlicher Koerperschaften, wie dem Britischen Museum und dem Belgischen Kongo-Museum, wurde er zum anerkannten Spezialisten auf diesem Gebiet. Er war hierbei stets bestrebt, ueber das rein Taxonomische hinaus allgemeinere Fragestellungen zu behandeln (Mimikry-Problem, tiergeographische Verbreitung). Als Ordinarius fuer Zoologie und vergleichende Anatomie hat Reichensperger eine umfangreiche Lehrtaetigkeit entfaltet. Durch seine grossen faunistischen Kenntnisse war er vor allem in den Stand gesetzt, seine Exkursionen zu einem Genuss fuer alle Teilnehmer zu gestalten, nicht zuletzt deshalb, weil seine eigene grosse Naturliebe und seine vaeterliche Anteilnahme an Freud und Leid seiner Schueler alle in froehlicher Schaffensgemeinschaft verband. Viele Generationen von Studenten haben dem Jubilar hierfuer ganz besonders zu danken. Darueber hinaus hat er durch sein Eintreten fuer den Naturschutzgedanken und durch Foerderung der Heimatforschung ausserordentlich segensreich gewirkt. Waehrend die wertvolle, an Typen reiche entomologische Sammlung Reichenspergers den Krieg gluecklich ueberdauerte, fiel die alte Arbeitsstaette im Poppelsdorfer Schloss in Schutt und Asche. Unser innigster Wunsch ist, dass er recht bald die Wiederaufnahme der wissenschaftlichen Arbeit in neuen Raeumen erleben moege! — (Bonner Universitaets-Zeitung, Nr. 31, 1948).

Karl G. Grell.

Dr. Erwin Lindner.

Am 7. April feierte der bekannte deutsche Dipterologe Dr. Erwin Lindner (Stuttgart) seinen 60. Geburtstag. Er wurde geboren am 7. April 1888 zu Boeglins (Bezirk Memmingen, Bayrisch Schwaben) auf dem Gutshof des Vaters. Nach Absolvierung der Oberrealschule in Muenchen fuehrte ihn eine ausgesprochene Neigung zum Studium der Naturwissenschaften, vor allem der Zoologie, mit dem Ziel der Museumslaufbahn. Seine hauptsaechlichsten Lehrer waren Hertwig, Goldschmidt, Doflein, Goebel und Rothpletz. Im Jahre 1913 wurde das Studium mit dem Erwerb des Dr. phil. der Muenchener Universitaet abgeschlossen, und im selben Jahre erfolgte der Eintritt als Assistent an der Wuerttembergischen Naturalien-Sammlung. Das Arbeitsgebiet an dieser Anstalt wurde — Neigung, Wunsch und Auftrag entsprechend — die Entomologie. Nach ersten Studien auf dem Gebiet der Trichopterenkunde und verschiedener musealer Betaetigung in anderen Insektenordnungen, auch Ostracoden bildeten einige Zeit eine bevorzugte Tiergruppe.

wurden die Dipteren schliesslich die Ordnung, der das Hauptinteresse gewidmet wurde. Ausschlaggebend dafuer war das Vorhandensein der alten von Roser'schen Dipterensammlung und ihr schlimmer Zustand. Das Bestreben, diese Sammlung vor dem Verfall zu erhalten, und die eingehendere Beschaeftigung mit diesen Insekten zeigte sehr bald den Mangel geeigneter Bestimmungsliteratur — der gute alte Schiner war fuer viele Familien bei weitem nicht mehr ausreichend! — und fuehrte zu dem Entschluss, selbst das Entstehen eines derartigen Werkes in die Wege zu



Dr. E. Lindner

leiten. Erst musste aber der Weltkrieg zu Ende sein. Lindner beteiligte sich als Kriegsfreiwilliger. Als Skilaeufer ausgebildet, fand er Verwendung im Kampfabschnitt der Vogesen. Im Juni 1917 wurde er verwundet und wanderte 14 Monate ins Lazarett. Im Jahre 1917 war er in der Etappe in Serbien taetig. 1918 verheiratete er sich mit Freya Uhlenhuth. Vier Jahre spaeter, 1922, begann das Erscheinen des grossen Werkes "Die Fliegen der palaearktischen Region" beim Verlag Schweizerbart (Erwin Naegelé) in Stuttgart, nach Ermunterung durch Theodor Becker und Friedrich Hendel, die beide auch selbst noch einige Familien bearbeiteten. Urlaubereisen wurden vor allem in die Alpen unternommen und fuehrten zu einer intensiven Sammeltaetigkeit. 1924 wurde Dalmatien besucht. 1925/26 bot sich Gelegenheit zur Beteiligung an der "Deutschen Gran Chaco-Expedition"; unter nicht immer guenstigen Umstaenden wurde eine

sehr ansehnliche Insektensammlung mitgebracht, und die Bearbeitung durch verschiedene Autoren in der "Konowia" ergab eine Fuelle neuer Formen gerade in der Ordnung der Dipteren. Im Jahre 1934 wurde eine Sammel- und Studienreise nach Anatolien (Akschehir) durchgeführt, und 1938 wurde in den Sommermonaten an der italienischen Riviera (Alassio) gesammelt. Besondere Liebe wandte Lindner allmaehlich dem Studium der Familie der Stratiomyiiden zu, ueber die er zahlreiche Arbeiten in den verschiedensten Zeitschriften veroeffentlichte. Sein Hauptverdienst aber ist die Herausgabe des grossen Fliegenwerkes, opus aere perennius! Moege es ihm vergoennt sein, dasselbe zu gutem Abschluss zu fuehren.

T. Borgmeier.

PEQUENAS COMUNICAÇÕES.

Die Rettung der Sammlungen Wasmann's und Schmitz'.

Ueber den Verbleib der Myrmecophilen- und Termitophilen- Sammlung des verstorbenen P. Erich Wasmann, S. J., auf die in dieser Zeitschrift kurz Bezug genommen wurde (Rev. de Ent. 1944, p. 352; 1945, p. 265), liegen jetzt genauere Einzelheiten vor. Am 7. Juli 1942 wurde das grosse Ignatiuskolleg der Jesuiten in Valkenburg (Limburg, Holland) durch die Gestapo aufgehoben. Die Bewohner wurden nach Aachen gebracht. Unter ihnen befand sich der bekannte Phoridenforscher P. H. Schmitz. Letzterer schrieb nach seiner Freilassung an Dr. E. Lindner (Stuttgart), dass er alles verloren haette und fragte an, ob Lindner etwas fuer ihn tun koenne, sonst koenne er den Beitrag (Phoridae) fuer "Die Dipteren der Palaearktischen Region" nicht fortsetzen. P. Schmitz schrieb auch dem oesterreichischen Pfarrer Soyka (Mymaridenspezialist, Hundsheim, Niederoesterreich), aber ohne ihn um Hilfe zu bitten. Tatsaechlich wandten sich beide Herren, der eine an einen ihm bekannten hoeheren SS in Holland, der andere (Soyka) an Prof. Bischoff (Zool. Museum, Berlin), der bei ihm zum Hymenopterenfang kurz vorher logiert hatte. Auch Bischoff soll sich an einen ihm bekannten hoeheren SS um Hilfe gewandt haben. Der Wunsch des P. Schmitz war nur, man moechte ihm erlauben, nochmals nach Valkenburg zu reisen und seine Sammlung, nebst Handapparat etc. dort zu holen. Von Coll. Wasmann war dabei keine Rede. Sein Wunsch wurde also von zwei Seiten her der deutschen Gestapo im Haag vorgetragen, und nun begann deren Betrug und Intrigenspiel. Diese Behoerde schrieb an P. Schmitz, sie wollte auf Lindner's Anregung seine Sachen freigeben; er sollte am 31. August 1942 fuer drei Tage nach Valkenburg kommen, um einzupacken. Als Schmitz an diesem Tage nach Valkenburg kam, war zu seinem Erstaunen Prof. Bischoff auch da. Er war die ganze Nacht hindurch gefahren und 1/2 Stunde vorher im Maastrichter Buero der Gestapo angekommen. Wenn er nicht schon eingeweiht war, wurde er es jetzt: Die Phoriden und die Coll. Wasmann sollten nach Berlin gehen. P. Schmitz hatte davon zunaechst keine Ahnung und begann in Valkenburg in der Gegenwart Bischoff's einzupacken. Erste nachmittags verriet ihm Bischoff, was geplant sei. P. Schmitz war sprachlos, bekam nachts akutes Glaukom, wanderte 16 Tage ins Spital und war ausgeschaltet. Nach Heilung kam er nach Deutschland mit leeren Haenden zurueck. Inzwischen wurde die Phoridensammlung, von der sich 3/4 im Museum von Maastricht befand, sowie die Myrmecophilen- und

Termitophilen-Sammlung Wasmann's, die schon Ende 1941 dort untergebracht war, sowie vieles aus der Hinterlassenschaft Wasmann's, das sich im enteigneten Ignatiuskolleg befand, zum Zoologischen Museum in Berlin gebracht; es soll ein ganzer Waggon voll gewesen sein. 1945 hat Major John Wedell Bailey von der 9. amerikanischen Armee, Professor der vergl. Anatomie in Richmond, Va., der sich auch fuer Entomologie interessiert, wahrscheinlich auf Anregung der Direktion des Maastrichter Naturhistorischen Museums, das Verschleppte in Berlin angefordert und persoenlich nach Maastricht gebracht. Die trocken praeparierten Insekten der Sammlungen von Wasmann und Schmitz sollen gut erhalten sein.

T. Borgmeier.

Preservation of Grains in Storage.

Grain losses caused by pests can be prevented by known techniques, and the world's granary can be made to provide a richer store of food. This is the central theme of a new book, *Preservation of Grains in Storage*, just (March 1948) issued by the Food and Agriculture Organization of the United Nations (FAO). The 174-page book, arranged and edited by Stephen S. Easter, entomologist, Plant Industry Branch, Agriculture Division, FAO, is a collection of technical papers presented at the International Meeting on Infestation of Foodstuffs, held in London last August. The book brings together in one volume material usually published separately — on insects, fungi, rodents, storage, grain drying, research, and a world approach to the problem. The introduction was written by L. E. Kirk, head of FAO's Plant Industry Branch. "A significant lesson to be learned", he says, "is the fact that progress in infestation control depends not so much upon discovering new scientific knowledge on this subject as upon putting to use the information now readily available". The papers were written by Rizk Attia, Egyptian Ministry of Agriculture; S. A. Bennett, British Ministry of Food; R. T. Cotton of the U. S. Department of Agriculture and H. E. Gray of the Canadian Department of Agriculture; J. W. Evans, Imperial Institute of Entomology, London; John A. Freeman, British Ministry of Food; W. McAuley Gracie, British Ministry of Food; E. W. Hicks, Central Scientific and Industrial Research, Australia; William V. Hukill, U. S. Department of Agriculture; A. G. Johnson, U. S. Department of Agriculture; E. R. Kalmbach, U. S. Department of the Interior; Ying-Tou Mao, Agriculture Division, FAO; R. Mayné, Director of the National Entomological Station, Belgium; T. A. Oxley, British Department of Scientific and Industrial Research; Charles E. Palm, Cornell University; and P. Vayssiére, French professor of the entomology of colonial agriculture. In a summing-up paper, Dr. Palm states the problem simply: "Man has long been in competition with insects for commodities which are of mutual interest... The competition is increasing and will ever remain as a constant menace to human welfare. Our fight for food and fiber can never be abandoned; it must be strengthened and joined on a cooperative basis... Insects do not respect political boundaries in their distribution, nor have they respect for race, creed, or color... It is essential, therefore, that we recognize the magnitude of our task, the need for wholehearted cooperation among professional workers of all nations, and support of their work if we are to go forward successfully in the struggle for insect control". Dr. Palm and other writers in this symposium emphasize that although much can be done with known methods to control infestation, there is still a great need for further research to meet all kinds of conditions all over the world. This is the second book

issued by FAO on this subject, the 20-page *Thieves of Stored Grain* being a popular treatment. *Preservation of Grains in Storage*, which contains charts, maps, reference lists, and an index, is priced at \$1.50. It can be purchased from the following FAO sales agents: *Australia*, H. A. Goddard Pty. Ltd., 225a George St., Sydney; *Canada*, Ryerson Press, 299 Queen St. W., Toronto; *Denmark*, Einar Munskgaard, Nørregade 6, Copenhagen; *France*, Les Editions A Pedone, 13 rue Soufflot, Paris V; *Netherlands*, N. V. Martinus Nijhoff, Lange Voorhout 9, s'Gravenhage; *Switzerland*, Librairie Payot, S. A., Lausanne; *United States of America and Latin America*, International Document Service, Columbia University Press, 2960 Broadway, New York 27, N. Y. Thus far issued only in English, the book will later appear in French and Spanish translations. For countries in which there are as yet no sales agents, the book may be ordered from the Documents Distribution and Sales Service, FAO, 1201 Connecticut Avenue, N. W., Washington 6, D. C., U. S. A.

"Arthropoda".

Em Novembro de 1947 apareceu em Buenos Aires o primeiro fascículo da nova Revista "Arthropoda", órgão oficial da "Asociación Argentina de Artropodologia", que se destina à publicação de artigos originais que tratem de embriologia, morfologia, anatomia, histologia, fisiologia, ecologia, taxonomia, sistemática, zoogeografia e paleontologia dos artrópodos argentinos, e neotrópicos em geral, excluindo os trabalhos de caráter aplicado. A nova Revista será internacional, publicando artigos escritos em castelhano, português, francês, italiano, inglês, alemão e latim. "Arthropoda" será publicado em fascículos sem data fixa; cada volume constará de quatro números com um total aproximado de 400 páginas. Preço de cada volume: 25 pesos para a Argentina, e 30 pesos para o estrangeiro. Toda a correspondência deve ser dirigida ao Presidente da "Asociación Argentina de Artropodologia", Sr. Júlio A. Rosas Costa, Calle Lácar 3722, Buenos Aires, Argentina. O primeiro fascículo, nitidamente impresso, conta 128 páginas e contém os seguintes trabalhos: Pereira, Descripción de un nuevo escarabajo brasileño (*Col. Scarabaeidae*); Blanchard, Descripciones y anotaciones de Microgastrinos argentinos (*Hym.*); Schubart, O elemento "synanthropo" e estrangeiro entre os *Diplopoda* do Brasil; Martínez, Lamellicornia neotropical (*Col.*); Ogloblin, Las glándulas odoríferas de la langosta, *Schistocerca cancellata* Serv. (*Orth.*); Monrós, Notas sobre *Crioceridae* argentinos (*Col. Chrysomelidae*); Garriker, Studies in neotropical *Mallophaga*; Martínez, Addenda y corrigenda al trabajo de Blackwelder "Checklist etc." (*Scarabaeidae, Coprinae*).
T. Borgmeier.

Notícias Diversas.

Na reunião de 17 de Dezembro de 1947, a Sociedade Brasileira de Entomologia (São Paulo) conferiu o título de Sócio correspondente aos seguintes entomólogos: Dr. René Malaise (Museu Real de Estocolmo); Dr. C. B. Williams (Rothamsted Experiment Station, Inglaterra); Prof. Charles P. Alexander (University of Massachusetts, Amherst, Mass.); Dr. Richard E. Blackwelder (U. S. National Museum, Washington, D. C.); Dr. Juan M. Bosq (Laboratório Central de Zoologia Agrícola, Buenos Aires).

Dr. Erwin Lindner (Stuttgart) schreibt: "Unser schoenes Museum ist im September 1944 zerstört worden, wie Stuttgart ueberhaupt nur eine Ruinenstadt ist. Unsere Sammlungen sind groesstenteils noch zerstreut in

ihren Depots im ganzen Lande, da sie hier kein Gebaeude mehr aufnehmen konnte. Meine Spezialbibliothek ist zu 95% verbrannt, leider auch Ihre Revista".

Some idea of the losses of stored grain that can occur is gained from the experience of the United Kingdom during World War I. The U. K. had 3,5 million tons of grain piled in bags in Australia. It could not be delivered because of German U-boat activity. The wheat remained, stacked in bags, from 1917 to 1919. It was attacked by weevils, and they increased at a terrific rate. The entire lot, worth \$57.5 million, was in danger of being lost. Damage to the extent of \$2.5 million was done before control measures were started. Control of the pests cost \$1.5 million, making a combined loss and control cost of \$4 million. This loss, largest in history in any one stockpile, could have been prevented. (From the pamphlet "Thieves of Stored Grain", published by the Food and Agriculture Organization of the United Nations.)

Prof. Dr. J. Douglas Hood, o conhecido especialista de Thysanoptera (Cornell University, Ithaca, N. Y.), chegou em principios de Maio deste ano ao Rio de Janeiro a fim de coleccionar material de estudo durante dois meses.

Prof. Dr. A. Reichensperger (Bonn) schreibt an den Herausgeber: "Sie haben mir nun die groesste Freude beschert, die mir seit 10 Jahren zuteil geworden ist. Die Pakete mit der Revista sind gestern schnell und gut hier eingetroffen und haben naturgemaess schon deswegen groesste Freude erregt, weil sie die erste Sendung aus Suedamerika seit vor dem Kriege darstellen. Ich kann Ihnen nicht sagen wie mir zumute ist, dass diese Verbindung nun wieder besteht. Man entbehrt doch die Literatur ganz entsetzlich. Stellen Sie sich vor: die Arbeit von Weber, sowie die Arbeit von Autuori ueber den Pilz der Blattschneider, habe ich wenige Stunden nach der Ankunft bereits in meinem Kolloquium mit den aelteren Studenten besprochen. Jede Literatur, die uns erreicht, wird mit Heiss hunger verzehrt. Ich habe mit Freuden gesehen, dass der Inhalt der Revista immer vielseitiger und reichhaltiger wird. Sie ist fuer die Entomologie geradezu unentbehrlich und ich wuensche ihr recht viele Abonnenten und Goenner, damit sie ihre grosse Aufgabe auch weiterhin erfuellen kann".

Prof. Dr. H. Eidmann, vormals Prof. der Forstzoologie an der Universitaet Goettingen, schreibt: "Ich bewundere es, dass es Ihnen gelungen ist, die Revista durch alle Faehrnisse der Zeit hindurchzuretten. Die Zeitschrift ist so wertvoll, dass ich es stets bedauert habe, sie nicht vollstaendig zu besitzen. Verschiedene Arbeiten, die ich inzwischen aus Amerika bekommen habe, wie z. B. die von M. R. Smith ueber *Apsycho-myrmex* und *Stegomyrmex*, haben mir schon gezeigt, dass Ihre Zeitschrift in unveraenderter Qualitaet weitergefuehrt wurde und bereits die stattliche Zahl von 18 Baenden erreicht hat. Ich freue mich sehr, dass Sie einen Assistenten aus Ihrem Orden erhalten werden (P. Walter Kempf, O. F. M., zur Zeit in U. S. A.), der die Tradition der von Ihnen geschaffenen Arbeiten weiterzufuehren berufen ist. Fuer die gesamte entomologische Welt, insbesondere aber fuer uns Myrmecologen, ist dies sehr wesentlich, zumal jetzt nach dem Tode Bruchs, soviel ich weiss, kein Fachmann mehr sich an Ort und Stelle dauernd mit den einzigartigen myrmecologischen Verhaeltnissen Suedamerikas befassen kann. Mit der Ameisenforschung in Deutschland ist es zur Zeit nicht gut bestellt. Frl. Dr. Skwarra hat sich bei dem Einzug der Russen in Koenigsberg vergiftet, und von vielen andern fehlt mir jede Nachricht. Ausser mir scheint nur noch Goesswald myrmecologisch taetig zu sein. Auch in Italien ist nach dem Tode von Menozzi und Finzi die myrmecologische Tradition anscheinend voellig

abgerissen. Dagegen sind in USA viele junge Forscher auf unserem Fachgebiet tätig".

A new member of the Division of Natural Sciences of UNESCO, Mr. Boutelle Reid from Canada, has been appointed to work whole-time on "*Scientific Documentation*". His most urgent task will be to investigate ways and means of assisting the flow of books and periodicals across national boundaries, and of improving the existing services of scientific documentary reproduction. He will also investigate the question of the rationalisation of scientific publication and abstracting, in preparation for a future world congress on the subject. It is also hoped to begin work on a *World Register of Scientists* after the installation of a Hollerith punched-card selector machine. (J. Needham, in "*Biologia*", vol. 1, n. 5, 1947.)

A "Society for the Promotion of Research on Surinam and Curaçao" has been founded at Utrecht under the presidency of A. A. Pulle. P. Wagenaar Hummelinck is secretary. There are already many members. It is hoped that more attention will be given in the future, in the Netherlands, to the study of natural history of Surinam and Curaçao. The establishment of a number of nature reserves is being discussed and several publications and bibliographies are in preparation. ("*Biologia*", vol. 1, n. 5, 1947.)

The "Station d'Entomologie Agricole Coloniale" has recently been established at the Paris N. H. Museum, at 57, rue Cuvier. The station, which has an extensive and able staff, is making a thorough study of tropical economic entomology. Special efforts are being made to interest all concerned with agriculture in the French colonies to send insects. Mailing boxes, government address labels, cards for the necessary information, etc. are available for all willing to collaborate. ("*Biologia*", vol. 1, n. 5, 1947.)

A report of the "Conference of Foreign Student Advisers", organised by the Institut of International Education, 2 West 45th St., New York City, will be found in its News Bulletin, Special Issue, June 1, 1947 (incl. a list of foreign student advisers in the U. S.). ("*Biologia*", vol. 1, n. 1, 1947.)

O Dr. Petr Wygodzinsky, que desde 1941 vinha trabalhando no Instituto de Ecologia e Experimentação Agrícola do Rio de Janeiro, embarcou em Maio deste ano para a Argentina, onde vai continuar os seus estudos na Universidade Nacional de Tucumán. Doutorando em Entomologia pela Universidade de Basel (Suíça), o Dr. Wygodzinsky notabilizou-se pelos seus trabalhos sobre Thysanura e Hemiptera. Desde 1942 vinha redigindo a secção "Bibliografia" da Revista de Entomologia. Sua ida para a Argentina constitui grande perda para o Brasil, onde o jovem entomologista deixa numerosos amigos. Seu endereço atual é: Instituto de Medicina Regional, Universidad Nacional de Tucumán, Argentina.

BIBLIOGRAFIA.

Por T. Borgmeier, O. F. M.

Coleoptera.

- Apolinar Maria, H., Miscelánea Entomológica. IV. Catálogo sistemático, sinónimo y geográfico de los insectos del género *Carabus* (latu sensu) que figuran en la colección del Museo del Instituto de La Salle. (Continuación). — Rev. Acad. Colombiana Ci. Exactas Fis. Nat., Bogotá, vol. 7, 1947, pp. 313-318.
- Balazuc, J., La tératologie des Coléoptères et expériences de transplantation chez *Tenebrio molitor* L. — Mém. Mus. Nat. Hist. Nat., Paris, vol. 25, 1948, 293 pp., 223 figs.
- Um trabalho notável, com excelentes figuras e bibliografia completa. Na parte geral, o autor trata da definição, do histórico, da frequência e distribuição, da classificação e da etiologia dos casos teratológicos. A parte especial se refere às anomalias gerais, do corpo, dos apêndices, dos élitros e das asas. No fim (pp. 269-293) o autor trata das suas experiências de transplantação em *Tenebrio molitor* L.
- Bechyné, J., *Jermaniella* n. g. Chrysomelidarum neotropicarum. — Casopis Ces. Spol. Praha, vol. 42, 1945, pp. 92-94.
- Jermaniella nitidula* n. g. n. sp. (Brasil).
- Bechyné, J., *Cosmogramma sterbai* n. sp. (Chrysomelidae). — Casopis Ces. Spol. Praha, vol. 42, 1945, pp. 115-116.
- Uma nova espécie de São Paulo, Brasil.
- Bechyné, J., De subspeciebus *Linographae musicalis* Stal (Col. Chrysomelidae). — Sborn. Ent. Odd. Zemsk. Mus. Praze, vol. 21/22, 1944, pp. 328-329.
- L. musicalis nitida* n. subsp. (Mato Grosso).
- Blackwelder, R. E., Checklist of the Coleopterous insects of Mexico, Central America, the West Indies and South America. Part 5. — Smithsonian Inst. U. S. Nat. Mus., Bull. 185, pp. 765-925.
- Esta parte se refere às famílias Anthribidae, Brentidae, Scolytidae, Platypodidae, Curculionidae, etc.
- Blackwelder, R. E., The Staphylinid beetles of the Cayman Islands. — Proc. U. S. Nat. Mus., vol. 97, 1947, pp. 117-123.
- Buck, J. B., Studies on the firefly. IV. Ten new Lampyrids from Jamaica. — Proc. U. S. Nat. Mus., vol. 97, 1947, pp. 59-79, 3 pls.
- Espécies novas de *Photinus*, *Diphotus*, *Microdiphot* e *Presbyolampis* n. g. (*immigrans* n. sp.).
- Hering, E. M., Neotropische Buprestiden-Minen. — Arb. physiol. angew. Ent. Berlin-Dahlem, vol. 9, 1942, pp. 241-249, 11 figs.
- Refere-se a material de Costa Rica (H. Schmidt leg.).
- Hofeneder, K. & Fulmek, L., Verzeichnis der Strepsiptera und ihrer Wirte. — Arb. physiol. angew. Ent. Berlin-Dahlem, vol. 9, 1942, pp. 179-185, 249-283; vol. 10, 1943, pp. 32-58, 139-169, 196-230.
- Martínez, A., Lamellicornia Neotropica. I. — Arthropoda, Buenos Aires, vol. 1, 1947, pp. 41-53, 8 figs.
- Traz 3 espécies novas: *Pinotus missionus*, *Ontherus lichyi* e *Uroxys dureti*.
- Martínez, A., Addenda y corrigenda al trabajo de Blackwelder "Checklist of the Coleopterous insects of Mexico, Central America, the West Indies and South America". (Scarabaeidae, Coprinae). — Arthropoda, Buenos Aires, vol. 1, 1947, pp. 109-114.
- Monrós, F., Notas sobre Crioceridae argentinos (Col. Chrysomeloidea). — Arthropoda, Buenos Aires, vol. 1, 1947, pp. 78-88, 9 figs.
- O autor descreve *Crioceris ignorata* e 4 espécies novas de *Lema* (chave).

Pereira, F. S., Descripción de un nuevo escarabajo brasileño (Col. Scarabaeidae). — *Arthropoda*, Buenos Aires, vol. 1, 1947, pp. 1-5, 2 figs.

Traz uma chave de *Agamopus* e a descrição de *martinezi* n. sp.

Sauer, H. F. G., Duval, G. & Falanghe, O., Combate à broca do café e a possibilidade do emprego de inseticidas. — *O Biológico*, São Paulo, vol. 13, 1947, pp. 205-214.

Trata da debelação de *Hypothenemus hampei* Ferr.

Seixas, C. A., Controle químico da broca do café. — *O Biológico*, São Paulo, vol. 13, 1947, pp. 215-228.

Refere-se a *Hypothenemus hampei* Ferr.

Wenzel, R. L., On the classification of the Histerid beetles. — *Zool. Series Field Mus. Nat. Hist.*, Chicago, vol. 28, 1944, pp. 51-151, 12 figs., 9 pls.

Traz chaves das subfamílias, tribos, e gêneros, e numerosas espécies de *Aeletes* (chave), *Trypanaeus*, *Saprinus*, *Reichardtia* n. g., *Geocolus* n. g., *Bacanius* (chave), *Carcinops*, *Epierus* (chave), *Phylloma*, *Hololepta*, *Phelisteroides* (chave), *Yarmister*, etc.

Hymenoptera.

Autuori, M., Combate à formiga saúva. — *O Biológico*, São Paulo, vol. 13, 1947, pp. 196-199, 6 figs.

Trata do combate das formigas do gênero *Atta*.

Blanchard, E. E., Descripciones y anotaciones de Microgastrinos argentinos. — *Arthropoda*, Buenos Aires, vol. 1, 1947, pp. 6-22, 8 figs.

Traz 8 espécies novas de *Apanteles*.

Gomes, J. G., Efeito das baixas temperaturas na emergência e reprodução de *Macrocentrus ancyliivorus* Roh., parasito da *Grapholita molesta* Busk. — *Bol. Fitossanitário*, Rio de Janeiro, vol. 2, 1945, pp. 219-223.

Gonçalves, C. R., Saúvas do Sul e Centro do Brasil. — *Bol. Fitossanitário*, Rio de Janeiro, vol. 2, 1945, pp. 183-218, 28 figs.

Refere-se à ecologia e etologia de 8 espécies brasileiras de formigas do gênero *Atta*.

Marcus, H., Los órganos de copulación de *Acromyrmex*. — *Folia Universitaria*, Cochabamba, 1947 (1948), pp. 73-78, 6 figs.

Moure, J., Notas sobre algunas abejas de la Provincia de Salta. — *Rev. Soc. Ent. Argentina*, Buenos Aires, vol. 13, 1947, pp. 218-253, 7 figs.

Traz espécies novas de *Psiloglossa*, *Oxaea*, *Augochloropsis*, *Megachile*, *Dicanthidium* n. g., *Leptometria*, e o novo gênero *Alepidosceles*.

Pinto da Fonseca, J., Criação da vespinha africana no Instituto Biológico. — *O Biológico*, São Paulo, vol. 13, 1947, pp. 148-156, 7 figs.

Trata de *Tetrastichus giffardianus*, parasita de *Ceratitis capitata* Wied.

Smith, M. R., A new genus and species of ant from Guatemala. — *Jour. N. Y. Ent. Soc.*, vol. 55, 1947, pp. 281-284, 2 figs.

Perissomyrmex snyderi n. g. n. sp.

Sobral, R. P., Criação de saúvas "vermelhas" (*Atta sexdens rubropilosa* Forel) em laboratório. — *Bol. Fitossanitário*, Rio de Janeiro, vol. 2, 1945, pp. 225-231, 6 figs.

Van Pelt, A. F., A preliminary key to the worker ants of Alachua County, Florida. — *Florida Entomologist*, vol. 30, 1948, pp. 57-67, 2 pls.

Willink, A., Las especies argentinas de Bembicini (Hym. Sphecidae Nissoninae). — *Acta Zool. Lilloana*, Tucumán, vol. 4, 1947, pp. 509-651, 173 figs.

Traz chaves dos gêneros e das espécies, e novidades de *Microbembex*, *Hemidula*, *Bicyrtes*, *Bembix*.

Lepidoptera.

- Brueckner, G. & Hering, M., Zygaeniden von Guatemala. — Ent. Rundschau, 1938, pp. 365-368, 404-407, 431-433.
- Traz espécies novas (descritas por Hering) de *Matthaca*, *Gonioprocris*, *Tetractonia*, *Seryda* e *Acoloithus*.
- Griot, M., Silbermann, R., Icart, A. & Freiberg, A., Revision bibliografica sobre el bicho de cesto. — Rev. Argent. Agron., vol. 13, 1946, pp. 310-330.
- Os autores dão uma bibliografia de 112 trabalhos, e apresentam dados interessantes sobre a taxonomia, biologia e os parasitos de *Oiketicus kirbyi* Guilding (Psychidae).
- Hayward, K. J., Hesperioidea Argentina. XVI. — Acta Zool. Lilloana, Tucumán, vol. 4, 1947, pp. 5-18, 1 fig.
- Hayward, K. J., Hesperioidea Argentina. XVII. — Acta Zool. Lilloana, Tucumán, vol. 4, 1947, pp. 55-64, 2 figs.
- Hayward, K. J., Hesperioidea Argentina. XVIII. — Acta Zool. Lilloana, Tucumán, vol. 4, 1947, pp. 133-144.
- Hayward, K. J., Nuevas especies de Hesperidos sudamericanos. — Acta Zool. Lilloana, Tucumán, vol. 4, 1947, pp. 121-128.
- Traz espécies novas de *Pellicia*, *Pholisora*, *Moeris* e *Mnestheus*.
- Hayward, K. J., Catalogus Hesperiidarum Reipublicae Colombianae. — Acta Zool. Lilloana, Tucumán, vol. 4, 1947, pp. 201-392.
- Hayward, K. J., Algunas plantas huéspedes de la larvas de los Hesperidos americanos. — Acta Zool. Lilloana, Tucumán, vol. 4, 1947, pp. 19-54.
- Hayward, K. J., Una nueva especie de *Automolis*. — Acta Zool. Lilloana, Tucumán, vol. 4, 1947, pp. 63-67, 1 est.
- Automolis flammula* n. sp.
- Hering, E. M., Aus der Praxis. Anfertigung von Genitalpraeparaten bei Microlepidopteren. — Mitt. Deut. Ent. Ges., vol. 13, 1944, pp. 44-45.
- Hering, E. M., Aus der Praxis. Genitalpraeparate von Macrolepidopteren. — Mitt. Deut. Ent. Ges., vol. 11, 1942, pp. 31-32.
- Hering, E. M., Eine neue Zygaenide aus Suedamerika. — Deut. Ent. Zeitschr., 1941, p. 111.
- Harrisina smaragdina* n. sp. (Colombia).
- Hering, E. M., Zwei neue Heteroceren aus Suedamerika. — Folium Entomologicum, Festschr. zum 60. Geburtstag von F. Bryk, pp. 5-7.
- Scea bryki* n. sp. (Dioptidae) Peru; *Xenosoma* (chave) *bryki* n. sp. (Pericopidae) Colombia.
- Travassos Filho, L., Redescricao de *Pericopis picta* (Guérin, 1844) (Lep. Pericopidae). Estudo de suas fases cromáticas e dados bionômicos. — Arqu. Zool., São Paulo, vol. 5, 1947, pp. 483-538, 65 figs., 2 est. col.

Diptera.

- Alexander, C. P., Studies on the crane-flies of Mexico. Parts VIII-IX (Order Diptera, Superfamily Tipuloidea). — Ann. Ent. Soc. Amer., vol. 39, 1946, pp. 119-139, 522-541.
- Contém novas espécies de *Tipula*, *Limonia*, *Dicranota*, *Shannonomyia*, *Atarba*, *Gonomyia*, *Gnophomyia*, *Erioptera*, *Cryptolabis*, *Molophilus*, *Oriomarga* e *Oxydiscus*.
- Alexander, C. P., Records and descriptions of neotropical crane-flies (Tipulidae, Diptera). XXI-XXII. — J. N. Y. Ent. Soc., vol. 54, 1946, pp. 293-307; vol. 55, 1947, pp. 173-184.
- Descrições nos gêneros *Holorusia*, *Pectinotipula*, *Limonia*, *Ctenolimnophila*, *Sigmatomera*, *Nephrotoma*, *Gnophomyia*, *Teucholabis*, *Erioptera* e *Molophilus*.
- Alexander, C. P., New or little-known Tipulidae (Diptera). Neotropical species. LXXIV-LXXVI. — Ann. Mag. Nat. Hist., London 1945 (11), vol. 12, pp. 390-419, 579-609, 734-765.

Contém numerosas descrições nos gêneros seguintes: *Brachypremna*, *Limonia*, *Polymera*, *Limnophila*, *Atarba*, *Gonomyia*, *Gnophomyia*, *Styringomyia*, *Holorusia*, *Nephrotoma*, *Teucholabis*, *Tipula*, *Helius*, *Orimarga*, *Epiphragma*, *Shannonomyia*, *Hexatoma*, *Elephantomyia* e *Erioptera*.

Alexander, C. P., Records and descriptions of Mexican crane-flies (Dipt. Tipulidae). — An. Esc. Nac. Cienc. Biol., Mexico, D. F., vol. 4, 1946, pp. 213-253, 28 fgs.

O autor dá um resumo histórico do estudo dos tipulídeos do México, e descreve novidades nos gêneros *Trichocera*, *Tipula* (com o novo subgênero *Nephrotomodes*), *Dicranoptycha*, *Limonia*, *Epiphragma*, *Shannonomyia*, *Gonomyia*, *Erioptera*, *Molophilus*.

Dybas, H. S. & Wenzel, R. L., A new genus of batflies from Guatemala (Streblidae). — Fieldiana Zoology, Chicago, vol. 31, 1947, pp. 149-154, 4 fgs.

Joblingia schmidtii n. g. n. sp.

Floch, H. & Abonnenc, E., Phlébotomes de la Guyane Française. (XXII). Clef d'identification de 144 phlébotomes mâles du nouveau continent. — Publ. 161, Inst. Pasteur Guyane Terr. Inini, 17 pgs.

Hering, E. M., Pterocallidae brasilienses. — Mitt. Muench. Ent. Ges., vol. 31, 1941, pp. 197-201, 4 fgs.

Traz uma chave de 7 gêneros, e as descrições de *Aciuroides plaumanni* e *fasciata* n. spp., e *Pterocerina paradoxa* n. sp. (S. Catarina, Brasil).

James, M. T., A review of the Larvaevorid flies of the tribe Leskiini with the setulose first vein (r_1). — Proc. U. S. Nat. Mus., vol. 97, 1947, pp. 91-115, 3 fgs.

Traz uma chave dos gêneros, e as descrições de *Leskiella* n. g. *brevirostris* n. sp., *Leskiomima* (chave) *cinerea* n. sp., *Dejeaniopalpus* (chave) *tenuirostris* n. sp., *Genea* (chave) *gracilis* e *aurea* n. spp.

Kessel, E. L., American Smoke-flies (*Microsania*: Clythiidae). — The Wasmann Collector, San Francisco, Calif., vol. 7, 1947, pp. 23-30.

Lane, J., The larva, pupa and adults of *Wyeomyia* (*Wyeomyia*) *melanopus* Dyar (Diptera, Culicidae). — Proc. Ent. Soc. Washington, vol. 49, 1947, pp. 97-101, 5 fgs.

Esse inseto do Panamá é redescrito e as partes essenciais são figuradas.

Lane, J., A biologia e taxonomia de algumas espécies dos grupos *Forcipomyia* e *Culicoides* (Diptera, Ceratopogonidae (Heleidae)). — Arq. Fac. Hig. Saúde Públ. Univ. São Paulo, vol. 1, 1947, pp. 159-170, 3 fgs.

Resumo do autor: O autor estuda espécies de *Lasiohelea* e *Forcipomyia*. O exemplar de *Lasiohelea opilionivora* n. sp. foi encontrado preso ao trocânter de um opilionídeo. São descritas a pupa e larva de *Lasiohelea styliifer*, de *Forcipomyia argenteola* e de *Forcipomyia inornatipennis* subsp. *ornaticrus*. E' também descrita a pupa de *Culicoides bambusicola* e fornecida uma descrição suplementar de *Forcipomyia obesa*, encontrada parasitando larva de fasmídeo. E' escolhido alótipo de *Forcipomyia argenteola*. Spécimens de *Forcipomyia inornatipennis* subsp. *ornaticrus* foram encontrados sugando larva de *Sphingidae*.

Mullin-Diaz, E., A propósito de algunas especies de Culicini nuevas para el Uruguay. — An. Inst. Hig. Montevideo, vol. 1, 1947, pp. 135-155, 1 mapa.

Sabrosky, C. W., A synopsis of the Larvaevorid flies of the genus *Eudejeania*. — Proc. U. S. Nat. Mus., vol. 97, 1947, pp. 141-156.

Traz uma chave das espécies e as seguintes novidades: *aldrichi* (Colômbia, Equador), *nuditibia* (Colômbia, Equador, Venezuela), *andeana* (Bolívia, Venezuela).

Hemiptera.

Floch, H., La maladie de Chagas en Guyane Française. — Publ. 164, Inst. Pasteur Guyane Terr. Inini, 5 pgs.

Refere-se a vários Triatominae.

Joërg, M. E., El problema zoogeografico de la enfermedad de Chagas-Mazza. — Rev. Arg. Zoogeogr., vol. 5, 1947, pp. 21-29, 1 mapa.

O autor trata da distribuição geográfica da subfamília Triatominae, relacionando-a com a distribuição da doença de Chagas.

Lent, H. & Wygodzinsky, P., Notes on some assassin bugs of the genus *Zelus* from the collections of the United States National Museum. — Proc. U.S.N.M., Washington, 1947, vol. 97, pp. 343-349, pls. 4-7.

Contém as descrições de *Z. salyavatoides* n. sp. (Bolívia), *Z. manni* n. sp. (Bolívia) e *Z. saileri* n. sp. (Equador).

Homoptera.

Richter, L., Membracidae Colombianae. Revisión de las espécies del género *Membracis*. — Rev. Acad. Colombiana Ci. Exact. Fis. Nat., Bogotá, vol. 7, 1947, pp. 382-403, 49 figs., 2 pls. col.

Traz 6 espécies novas.

Anoplura.

Werneck, F. L., Notas sobre o género *Enderleinellus* (Anoplura). — Mem. Inst. Oswaldo Cruz, Rio de Janeiro, vol. 45, 1947, pp. 281-305, 40 figs., 1 est.

Traz as seguintes espécies novas: *hondurensis*, *microsciuri*, *arizonensis*, *mexicanus*, *insularis*, *paraxeri*, *minutus*.

Mallophaga.

Carriker, Jr., M. A., Studies in Neotropical Mallophaga. VIII. Ischnocera of the American Psittacidae. Part I. Genus *Paragoniocotes*. — Arthropoda, Buenos Aires, vol. 1, 1947, pp. 89-108, 4 figs.

Traz as descrições de 10 espécies e 6 subespécies novas.

Orthoptera.

Hoelldobler, K., Studien ueber die Ameisengrille (*Myrmecophila acervorum* Panzer) im mittleren Maingebiet. — Mitt. Schweiz. Ent. Ges., vol. 20, 1947, pp. 607-648, 1 fig., 2 tabelas.

Traz interessantes observações biológicas; a espécie parece possuir duas formas diferentes, uma maior e a outra menor.

Monte, O., Combate às "paquinhas" das hortas. — O Biológico, São Paulo, vol. 13, 1947, pp. 165-170, 1 fig.

Refere-se a *Gryllotalpa hexadactyla*.

Ogloblin, A., Las glándulas odoríferas de la langosta *Schistocerca cancellata* (Serville). — Arthropoda, Buenos Aires, vol. 1, 1947, pp. 54-77, 17 figs.

Pirán, A., Catálogo sistemático y zoogeográfico de los grillo topos argentinos. — Acta Zool. Lilloana, Tucumán, vol. 3, 1945, pp. 141-149.

Vide a crítica deste trabalho em Arthropoda, vol. 1, 1947, pp. 118-122.

Roberts, H. R., Revision of the Mexican Melanoplini (Orth. Acrididae: Cyrtacanthacridinae). Part I. — Proc. Acad. Nat. Sci. Philadelphia, vol. 99, 1947, pp. 201-230, 27 figs.

Traz espécies novas de *Netrosoma*, *Aidemonia*, e o novo género *Aztecacris*.

Seixas, C. A., Luta contra os gafanhotos. — O Biológico, São Paulo, vol. 13, 1947, pp. 190-195.

Collembola.

Bonet, F., Un nuevo género de colémbolos de Argentina. — An. Esc. Nac. Cienc. Biol., México, D. F., vol. 4, 1947, pp. 405-411, 5 figs.

O autor descreve *Pachytallbergia scabra* n. g. n. sp.; considerando os caracteres deste inseto, o autor propõe considerar a antiga família *Onychiuridae* apenas como subfamília *Onychiurinae* da família *Hypogastruridae*.

Bonet, F., Un notable caso teratológico. Falta bilateral de antenas en un colémbolo, con consideraciones sobre las áreas cefálicas de los Poduromorpha (Collembola, Insecta). — An. Esc. Nac. Cienc. Biol., México, D. F., vol. 4, 1947, pp. 413-418, 3 fgs.

Bonet, F., Mas hipogastruridos anoftalmos de Mexico (Collembola). — Rev. Soc. Mex. Hist. Nat., vol. 7, 1946, pp. 51-62, 15 fgs.

— São descritos *Acherontides potosinus* n. sp. e *Tafallia insularis* n. g. n. sp.

Thysanura.

Marcus, H., Estructuras singulares de *Dinjapyx marcusii* (Silv.). — Folia Universitaria, Cochabamba, 1947 (1948), pp. 66-72, 6 fgs.

Diversas Ordens.

Beatty, H. A., The insects of St. Croix, V. I. — Jour. Agric. Univ. Puerto Rico, vol. 28, 1944, pp. 114-172.

Ferreira Lima, A. D., Insetos fitófagos de Santa Catarina. — Bol. Fitossanitário, Rio de Janeiro, vol. 2, 1945, pp. 233-251.

Marcus, H., Los estados biológicos. — Folia Universitaria, Cochabamba, 1947 (1948), pp. 45-63, 3 fgs.

Refere-se às sociedades de formigas e cupins.

Marcus, H., Un órgano de estridulación en hormigas y termitas. — Folia Universitaria, Cochabamba, 1947 (1948), pp. 39-44, 4 fgs.

Marcus, H., La embriogenesis de *Aethalion*, termitas y hormigas con una comparación de la anatomía de los insectos y vertebrados. — Folia Universitaria, Cochabamba, 1947 (1948), pp. 97-118, 36 fgs.

Ramos, J. A., The insects of Mona Island (West Indies). — Jour. Agric. Univ. Puerto Rico, vol. 30, 1946, pp. 1-74, 2 pls.

Traz as descrições de *Paradarnoides danforthi* n. sp. (Hom. Membracidae), *Paraprosotropis* n. g. *monensis* n. sp. (Hom. Kinnaridae), *Flatoidinus pseudopunctatus* n. sp. (Hom. Flatidae), *Ozophora octomaculata* n. sp. (Hem. Lygaeidae), *Ptychopoda monata* Forbes n. sp. (Lep. Geometridae).

Sauer, H. F. G., Constatação de Himenópteros e Dípteros entomófagos no Estado de São Paulo. — Bol. Fitossanitário, Rio de Janeiro, vol. 3, 1946, pp. 7-23.

Vária.

Brues, C. T., Insect Dietary: an account of food habits of insects and of insects as food. — 1946, XXVI+466 pp., 22 pls., 68 text-figs. \$5.00.

Uma resenha bibliográfica muito completa, com 190 páginas de referências.

Easter, S. S. & alii, Preservation of grains in storage. — FAO Agric. Studies, N. 2, Washington, 1948, 174 págs.

Veja: Pequenas Comunicações.

Gomes, J. G., Resposta olfativa nas relações entre hospedeiros e parasitos. — Bol. Fitossanitário, Rio de Janeiro, vol. 3, 1946, pp. 1-6.

Dado à publicidade em 1 de Junho de 1948.

Redator: Frei Thomaz Borgmeier, O. F. M., Convento S. Antônio,
Largo da Carioca, Rio de Janeiro, Brasil

Printed in Brasil

Impresso nas Oficinas Gráficas da Editora Vozes Ltda., Petrópolis, R. J.

Zur Kenntnis der bei *Eciton* lebenden myrmekophilen Histeriden (Col.)

Von T. Borgmeier, O. F. M., Rio de Janeiro:

(Mit 16 Textfiguren und 1 Tafel)

Die Erforschung der bei Wanderameisen der Gattung *Eciton* Latr. lebenden myrmekophilen Histeriden hat in den letzten 25 Jahren ganz erhebliche Fortschritte gemacht. Das ist nicht nur das Verdienst unermuedlicher Sammler (Zikán, Schwarzmaier, Nevermann, Schmidt, etc.), sondern auch erstklassiger Systematiker. Unter letzteren gebuehrt besondere Anerkennung Herrn Prof. Dr. A. Reichensperger (Universitaet Bonn), dem bekannten Spezialisten der Myrmekophilen und Termitophilen. In zahlreichen gut illustrierten Arbeiten hat er seit 1923 circa 28 neue Gattungen ecitophiler Histeriden beschrieben, unter denen sich hoechst interessante Anpassungsformen befinden (*Symphilister*, *Synetister*, etc.), deren wissenschaftliche "Erklaerung" noch fuer lange Zeit den Scharfsinn der Forscher herausfordern werden.

Die Gesamtzahl der seit 1923 beschriebenen ecitophilen Histeriden-Gattungen belaeuft sich auf 31 (mit 113 neuen Arten!). Die Gattungen sind folgende (in alphabetischer Reihenfolge):

- Aemulister* Reichensperger, 1938.
- Asynodites* Reichensperger, 1935.
- Aphanister* Reichensperger, 1933.
- Bastactister* Reichensperger, 1939.
- Cheilister* Reichensperger, 1924.
- Chrysetaerius* Reichensperger, 1923.
- Clientister* Reichensperger, 1935.
- Convivister* Reichensperger, 1936.
- Ecclisister* Reichensperger, 1935.
- Ecitonister* Reichensperger, 1923.
- Euxenister* Reichensperger, 1923.
- Hemicolonides* Reichensperger, 1939.
- Hetaeriarchus* Reichensperger, 1936.
- Latronister* Reichensperger, 1939.
- Morphetaerius* Reichensperger, 1939.
- Neolister* Bruch, 1926.
- Nevermannister* Reichensperger, 1938.
- Nymphister* Reichensperger, 1933.
- Panoplites* Reichensperger, 1923.
- Paratopinus* Reichensperger, 1923.
- Parodites* Reichensperger, 1923.
- Pelatetister* Reichensperger, 1939.
- Psalidister* Reichensperger, 1924.
- Pterotister* Reichensperger, 1939.

Pulvinister Reichensperger, 1933.
Sternocoelopsis Reichensperger, 1923.
Symphylister Reichensperger, 1923.
Synetister Reichensperger, 1924.
Synoditulus Reichensperger, 1924 (1938).
Wasmannister Bruch, 1929.
Xenister Borgmeier, 1929.

Die bisher bekannt gewordenen ecitophilen Histeriden, von denen man den Wirt mit Sicherheit kennt, wurden bei folgenden 16 Arten gefunden:

Eciton (s. str.) *burchelli* Westwood
Eciton (s. str.) *dulcius* Forel
Eciton (s. str.) *hamatum* Fabricius
Eciton (s. str.) *quadriglume* Haliday
Eciton (s. str.) *rogeri* Dalla Torre
Eciton (*Nomamyrmex*) *crassicorne* Fred. Smith
Eciton (*Nomamyrmex*) *schlechtendali* Mayr
Eciton (*Labidus*) *coecum* Latreille
Eciton (*Labidus*) *praedator* Fred. Smith
Eciton (*Neivamyrmex*) *alfaroi* Emery
Eciton (*Neivamyrmex*) *antillanum* Forel
Eciton (*Neivamyrmex*) *legionis* Fred. Smith
Eciton (*Neivamyrmex*) *pilosum* Fred. Smith
Eciton (*Neivamyrmex*) *pseudops* Forel
Eciton (*Neivamyrmex*) *raptans* Forel
Eciton (*Neivamyrmex*) *strobili* Mayr

Erwaegt man nun, dass die Gattung *Eciton* sehr artenreich ist (abgesehen von den Arten, von denen nur Maennchen beschrieben wurden, kennen wir bereits circa 65 Arten, die auf Arbeiter oder Soldaten begruendet wurden); erwaegt man ferner, dass gewisse ecitophile Histeridengattungen in mehreren Arten bei demselben Wirt vorkommen und nur sehr wenige mehrwirtig sind; und erwaegt man schliesslich, dass von einigen *Eciton*-Arten nur eine oder wenige Histeridenarten bekannt sind, so sieht man unschwer, welch ungeheueres Forschungsgebiet sich hier noch auftut.

Im Folgenden gebe ich die Beschreibung von zwei neuen Gattungen (*Nomadister* und *Tubulister*), die durch ihre "Exsudathoernchen" sehr bemerkenswert sind. Ferner beschreibe ich je eine neue Art von *Pterotister* und *Ecitonister*. Die neuen Gattungen und Arten stammen von Goiás, Brasilien, und wurden von meinem Freunde Rev. P. J. S. Schwarzmaier, C. SS. R., vor Jahren gesammelt. Ausser den Neubeschreibungen gebe ich zum Schluss noch einige Bemerkungen zu bereits bekannten Arten von Brasilien und Costa Rica.

Nomadister, nov. gen.

Die Koerperform ist laenglich oval und hoch, oben und unten wenig, hinten mehr konvex, an den Seiten steil abfallend. Kopf gross, zurueckziehbar. Stirn etwas eingedruickt, an den Seiten

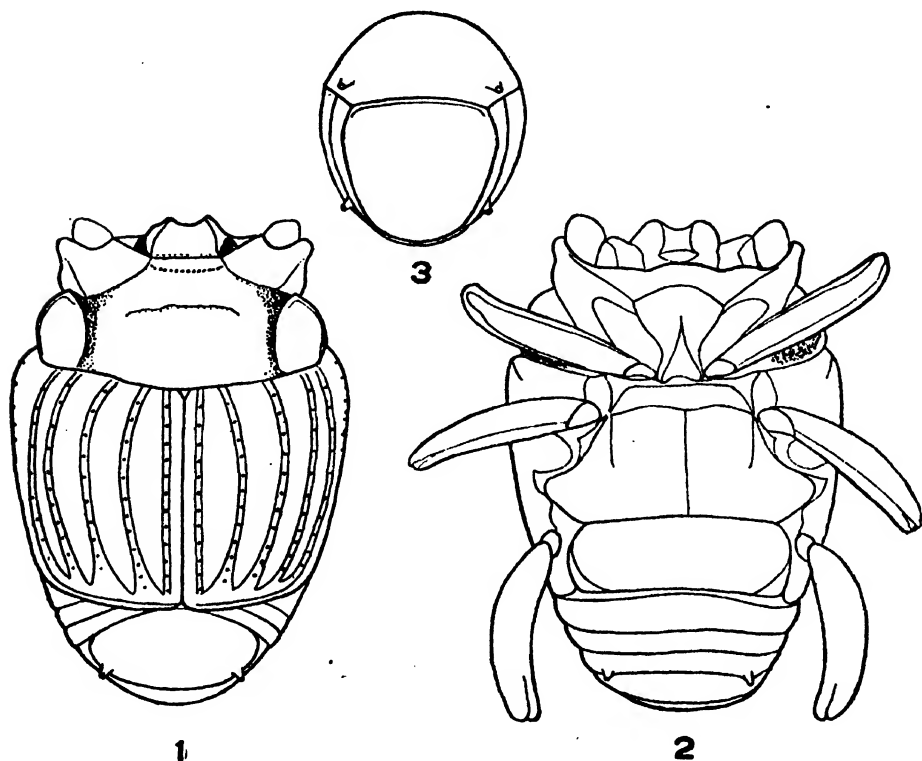


Fig. 1. *Nomadister papillatus* n. g. n. sp., Dorsalansicht. — Fig. 2. Idem, Ventralansicht. — Fig. 3. Idem, Pygidium, Dorsalansicht (das Propygidium ist perspektivisch verkuerzt) (Borgmeier del.f.).

leicht gekielt, vorn nicht vom Epistom getrennt. Labrum quer. Mandibeln kraeftig. Fuehler 9-gliedrig, Schaft kantig verdickt, Keule gross und langoval. Pronotum circa zweimal so breit wie lang, vorn in der Mitte mit breitem Ausschnitt zur Aufnahme des Kopfes, und seitlich mit engerem Ausschnitt fuer die Fuehlerkeule; Vorderecken kurz hornartig vorgezogen, hinter den Fuehlergruben oben abgeflacht, vom konvexen Mittelfeld durch eine schraege Furche getrennt; Seitenrand in der Mitte mit tiefem Quereinschnitt, wodurch an den Hinterecken ein laenglich ovaler, oben abgeflachter, vor verjuengter Keil abgesondert wird, der innen von einer tiefen Grube begleitet wird. Elytren breiter als an der Naht lang, gestreift und behaart. Propygidium quer, hinten

jederseits mit einem Exsudathoernchen. Pygidium oval. 4. Ventrit seitlich vom Apex des Pygidiums mit je einem Exsudathoernchen. Prosternum breit; Kiel flach, vorn verbreitert, basal schwach ausgebuchtet. Proepisternum mit Trichombueschel. Mesosternum vorn in der Mitte mit schwach konvexem Fortsatz, vom Metasternum durch eine deutliche Suture getrennt, Randlinie vorhanden. Metasternum hinten wappenschildartig verbreitert. 1. Ventrit gross, auch die uebrigen Ventrite gut entwickelt. Beine robust, etwas verlaengert; Tarsalfurchen vorhanden.

Genotypus: *Nomadister papillatus*, n. sp.

Die neue Gattung steht unter den Hetaeriomorphinen ziemlich isoliert da. Mit *Terapus* Mars., *Bastactister* Reichensp. und *Teratosoma* Lew., deren Pronotum ebenfalls seitlich tief eingeschnitten ist, besteht keinerlei naeherere Verwandtschaft. Von *Xenister* Borgm., die aehnlich gestreifte Elytren hat, ist die neue Gattung durch die gaenzlich verschiedene Bildung des Pronotums und der Sterna getrennt. Mit *Clientister* Reichensp., die aehnliche Exsudatororgane am Propygidium aufweist, ist sonst keinerlei Aehnlichkeit vorhanden. Die kraeftige Ausbildung der goldenen Trichombueschel unter den Seitenraendern des Halsschildes weist auf symphile Lebensweise. Auch die "Exsudathoernchen" sind nach meiner Ansicht als myrmekophile Anpassungen und nicht als sexuelle Merkmale zu werten, zumal sie bei *Clientister* in beiden Geschlechtern vorkommen. Doch bleibt abzuwarten, ob das bei *Nomadister* auch der Fall ist.

Nomadister papillatus, n. sp.

(Fig. 1-3; Taf. 1, Fig. 1)

Koerper kastanienrot, glaenzend, abstehend lang und zerstreut behaart.

Stirn etwas eingedrueckt (besonders vorn), an den Seiten leicht erhoben, mit nach vorn konvergierenden Randlinien; vorn nicht vom Epistom getrennt. Labrum glatt, mit einigen Haaren und geradem Vorderrand; Hinterrand obsolet. Fuehler mit 9 Gliedern; 2.-7. Geisselglied stark quer, allmaechlich stark verbreitert, das 7. etwa 5mal so breit wie lang; Keule langoval, etwas laenger als die Geisselglieder 1-7 zusammen, auf der ganzen Vorderseite dicht weisslich pubeszent.

Pronotum hinten breiter als vorn, in der Mitte vorn breit und flach ausgebuchtet; das mittlere Drittel dieser Ausbuchtung ist von einer punktierten Randlinie begleitet. Die Vorderecken sind durch eine schraeg vom Vorderausschnitt zum Seiteneinschnitt verlaufende Furche abgeschnitten, oben flach; der Vorderrand ist ueber den Fuehlergruben konkav, daneben sind die Aussenecken kurz hoernchenartig vorgezogen. Der Seitenrand des Pronotums ist auf der vorderen Haelfte leicht S-foermig ge-

schwungen, auf der hinteren Haelfte deutlich konvex. Kurz vor der Mitte ist der Seitenrand von einem tiefen Quereinschnitt unterbrochen; von diesem Einschnitt ab bis zu den Hinterecken ist der Seitenrand keilartig erhoehrt; dieser Keil ist laenglich oval, vorn zugespitzt, vorn innen am hoechsten, oben flach und faellt nach den Schultern schraeg ab; vorn und an den Seiten weist er eine schwache Randlinie auf, und innen ist er von einer tiefen Furche begrenzt. Mittelfeld gross, querkonvex, vor der Mitte mit einer sehr schwachen punktierten Querleiste, die aber nicht bis zu den Randfurchen reicht. Schildchen klein, dreieckig.

Elytren breiter als das Pronotum, vorn etwas breiter als hinten, an den Seiten senkrecht abfallend, mit einer feinen Humerallinie, vier kompletten Dorsalstreifen und einem Nahtstreif. Alle Streifen bestehen aus feinen Doppellinien, die apikal konvergieren; die aeussere Linie des ersten Dorsalstreifs setzt sich laengs des ganzen Hinterrandes fort. Alle Streifen sind mit zerstreuten haartragenden Punkten besetzt.

Propygidium glatt und glaenzend, zerstreut behaart, subhexagonal, Seiten- und Hinterecken ausgepraegt; in der Naehe der Seitenecken befindet sich je eine konische Papille (Exsudathoernchen), die etwas seitlich gerichtet ist und apikal eine zirkulare Oeffnung aufweist. Pygidium glatt, zerstreut behaart, laenger als breit, hinten konvex gerundet, vorn mit feiner Randlinie.

Unterseite glaenzend, besonders stark an den Episternen und den abdominalen Ventriten 2-4; Prosternalkiel und Lobus fein punktiert; Mesosternum fast glatt; Metasternum und 1. Ventrit grober punktiert und schwach gerunzelt. Der Bau der Sterna geht aus der Figur hervor. Prosternalkiel ziemlich flach, vorn breit querkonvex, basal mit schwacher konkaver Ausbuchtung; Prosternallinien vorn in einer Spitze zusammenlaufend; Lateral-suturen scharf, hinten eingeschnuert und vorn divergierend; Trennungslinie zwischen Lobus und Kiel deutlich, nach vorn konvex. Lobus kurz und breit, mit schwach konvexem Vorderrand und feiner Randlinie. Proepisternum mit dichtem goldgelbem Trichombueschel. Mesosternum etwas eingedrueckt, vorn in der Mitte mit schwach konvexem Fortsatz, Vorderecken steil erhoben, Randlinie deutlich, seitlich mit der Meso-metasternalisutur vereinigt; letztere ist leicht doppelt geschwungen. Metasternum leicht querkonvex, hinten stark verbreitert, mft deutlicher und kompletter Mittellinie; von den Enden der Meso-metasternalisutur geht noch jederseits eine gerade Linie nach hinten, die auf der

Mitte der Scheibe endigt. 1. Ventrit etwa $\frac{2}{3}$ so lang wie das Metasternum, Seiten konvex, vorn fein gerandet, Seitenrandlinie stark konvex und nach hinten konvergierend, die Hinterecken abschneidend. 4. Ventrit seitlich mit je einer Exsudatpapille, welche ähnlich gebaut ist wie die auf dem Propygidium befindliche.

Alle Schenkel sind verdickt und auf der Vorderseite stark konvex; Vorderschenkel apikal gekrümmt. Alle Schienen sind auf der Vorderseite (Aussenseite) konvex und auf der Hinterseite (Innenseite) abgeflacht; dorsal oder besser anterodorsal befinden sich zwei parallele Laengslinien, welche eine unbehaarte "Furche" einschliessen. Tarsen kurz, etwas komprimiert; Tarsalfurchen tief, an den Hintertibien fast die ganze Laenge der Schiene einnehmend. Alle Beine sind abstehend behaart; Tibie I-III ventral mit dichten Filzhaaren auf dem apikalen Drittel.

Laenge des Koerpers 2,1 mm, Breite 1,3 mm; Hinterschiene 1,1 mm.

Holotypus 1 Exemplar von Trindade, Goiás, Brasilien, Rev. P. J. S. Schwarzmaier leg. 21. September 1938, in einem Zuge von *Eciton* (*Neivamyrmex*) *pseudops* Forel.

Tubulister, nov. gen.

Koerperform oval, Halsschild maessig, Fluegeldecken staerker konvex. Die Exsudatpapillen des Propygidiums sind tubusartig verlaengert und von oben sichtbar. Kopf ziemlich gross. Stirn eben, nicht gekielt, vom Clypeus nicht getrennt. Labrum quer, behaart. Mandibeln kraefftig. Fuehlergruben unten geschlossen, in den Vorderecken des Pronotums angebracht. Fuehler 9-gliedrig; Schaft apikal stark kantig verdickt; Geisselglieder 2-7 sehr kurz und allmaehlich stark verbreitert; Keule gross, langoval, behaart. Pronotum hinten zweimal so breit wie in der Mitte lang, nach vorn allmaehlich verschmaelert, einfach ohne Erhebungen, maessig querkonvex, Vorderrand tief ausgebuchtet, Vorderecken abgerundet, Hinterrand konvex, zerstreut behaart. Schildchen klein. Elytren zusammen breiter als an der Naht lang, vorn breiter als hinten, konvex, gestreift und behaart, Seiten konvex. Propygidium subhexagonal, ungefaehr so lang wie breit, in der Naehة der Hinterecken jederseits mit einem relativ langen konischen Exsudathorn. Ein kuerzers Exsudathoernchen befindet sich am 4. Ventrit, seitlich vom Apex des Pygidiums. Prosternalkiel schmal, apikal schnabelfoermig frei vorstehend und vom Lobus getrennt, basal sanft ausgebuchtet. Mesosternum vorn in der Mitte

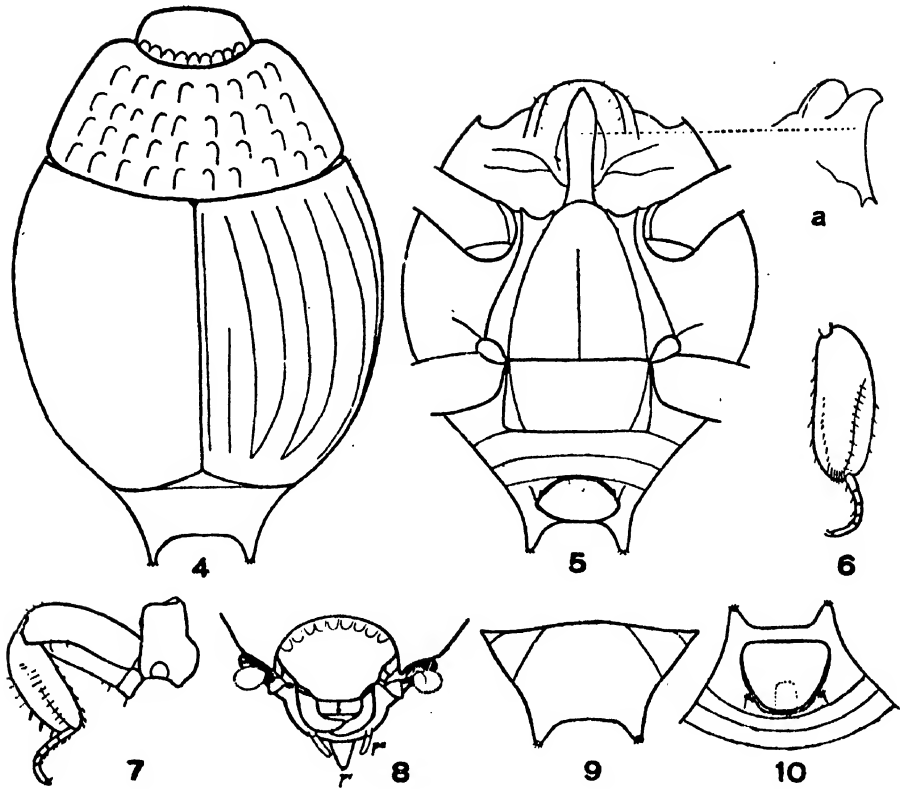


Fig. 4. *Tubulister curvipilosus* n. g. n. sp., Dorsalansicht. — Fig. 5. Idem, Ventralansicht; a. Prosternalkiel von rechts. — Fig. 6. Idem, Hinterschiene von innen. — Fig. 7. Idem, Vorderbein, von innen. — Fig. 8. Idem, Kopf von vorn. — Fig. 9. Idem, Propygidium, Dorsalansicht. — Fig. 10. Idem, Pygidium von hinten; die Exsudathoernchen sind perspektivisch verkuerzt. (Borgmeter del.).

breit konvex, hinten mit dem Metasternum verwachsen. Metasternum lang, hinten verbeitert, Mittellinie und Randlinien vorhanden. 1. Ventrit gross, rechteckig. Beine kurz, alle Tibien stark abgeplattet, Tarsalfurchen vorhanden.

Genotypus: *Tubulister curvipilosus*, n. sp.

Diese eigenartige Gattung gehoert zweifellos zu den Hetaeriomorphen, steht aber isoliert. Nach Bickhardt's Schluessel (Gen. Ins. Fasc. 166) gelangt man zu *Cyclechinus* Bickh., von der sich die neue Gattung durch andere Skulptur, andere Koerperform und besonders durch die Bildung der Sterna unterscheidet. Der apikal frei vorstehende, schnabelartig etwas nach unten gekruemmte Prosternalkiel ist sehr charakteristisch und wurde meines Wissens noch nicht beobachtet. Die merkwuerdigen Exsudathoernchen stellen nach meiner Ansicht myrmekophile Anpassungen dar. Doch bleibt abzuwarten, ob sie sich in beiden Geschlechtern vorfinden.

Tubulister curvipilosus, n. sp.

(Fig. 4-10; Taf. 1, Fig. 2, 5)

Koerper dunkel kastanienbraun, glaenzend, lang und zerstreut behaart. Stirn ziemlich eben, nach vorn leicht konvex, vom Epistom nicht getrennt, zerstreut behaart; ueber den Augen eine kurze Randlinie, am Hinterrand eine Querreihe sich beruehrender Flachpunkte. Labrum quer, vorn gerade, behaart.

Pronotum glaenzend, an den Seiten mit feiner Randlinie, die bis zum Halsausschnitt reicht; die Scheibe ist fein chagriniert und zeigt eine eigenartige feine Skulptur: feine strichartige Linien in Form von Spazierstoecken, deren "Griff" jederseits nach der Mittellinie gerichtet ist; innerhalb des "Griffs" befindet sich ein flacher tropfenfoermiger glatter Eindruck, und am basalen Ende des "Stockes" steht je ein langes apikal nach vorn gekruemmtes feines gelbes Haar. Man hat fast den Eindruck, als ob das Haar in die feine Rille des "Spazierstockes" hineingelegt werden koennte.

Elytren mit einem aeusseren und einem inneren Subhumeralstreif, 5 Dorsalenstreifen und einem Nahtstreif; alle Streifen sind einfach (nicht verdoppelt), 1-4 sind komplett, der 5. Streif ist auf der basalen Haelfte ausgeloescht. Alle Streifen tragen lange, apikal nach vorn gekruemmte Spuerhaare von gelber Farbe, wie sie auf dem Pronotum vorhanden sind, aber ohne die eigenartige Skulptur, wie sie oben beschrieben wurde.

Propygidium glatt und glaenzend, zerstreut behaart. Die konisch verlaengerten Exsudathoernchen weisen apikal eine zirkulare Oeffnung auf, die von einem Kranz kurzer Haerchen eingesaeumt ist.

Prosternum mit schmalem, gerundetem Kiel, der basal sanft ausgebuchtet ist; der Apex ist zugespitzt und schnabelartig etwas nach unten gebogen und ist frei vorstehend, vom Lobus losgeloest. Der Lobus ist vorn breit konvex und weist seitlich eine tiefe Laengsfurche auf; in der Mitte (ueber dem Apex des Kiels) ist der Lobus muldenartig vertieft. Mesosternum mit breit konvexem Fortsatz in der Mitte; an den Seiten ist der Vorderrand tief ausgebuchtet; die seitlichen Randlinien beginnen am Vorderrand, dort wo der konvexe Fortsatz aufhoert, und setzen sich ueber das ganze Metasternum fort; sie tragen eine kleine Verdickung an der Stelle, wo eigentlich die Meso-metasternalsutur liegen muesste, die aber erloschen ist. Metasternum nackt, glatt und glaenzend, leicht querkonvex, mit Mittellinie. 1. Ventrit ziemlich lang,

REVISTA DE ENTOMOLOGIA

Publicada e dirigida

por

Thomaz Borgmeier, O. F. M.

VOLUME XIX

Publicado em 3 fascículos

Com IV+616 páginas, 1 estampa e 432 figuras no texto

1948

Rio de Janeiro — Brasil

Lindsay & Co. Ltd.

ÍNDICE

Assuntos Vários.

Personalia 363 587

Die Rettung der Sammlungen Wasmann's und Schmitz' 366

The 25th anniversary of Barro Colorado Island, Canal Zone 591

Opinions and Declarations rendered by the International Commission on Zoological Nomenclature 592

Noticias diversas 368 568 593

Bibliografia 367 368 371 472 480 499 595

Entomologia Geral. Biologia.

Deboutteville, Observations sur l'écologie et l'éthologie des Zoraptères 347

Mahdihassan, Bacterial origin of muscle pigment in a Cicada 585

Entomologia Sistemática.

Coleoptera

Bechyně, Notes sur les Chrysomélides de l'Amérique du Sud 295

Bondar, Notas entomológicas da Baía 1

Borgmeier, Zur Kenntnis der bei Eciton lebenden myrmekophilen Histeriden 377

Ochs, Checklist of Neotropical Gyrinoidea 563

Saylor, Four new South American Melolonthine Scarab beetles 353

Schedl, On some new Neotropical Scolytidae 575

Uhmman, Neue Hispinae aus Suedamerika 207

— Berichtigung 498

Webster Kay, Phanaeus menelas (Cast. 1840) not P. splendidus (F. 1781) 418

Diptera

Alexander, Notes on the Tropical American species of Tipulidae (IV, V) 149 509

Barretto, Estudos sobre Tabânidas brasileiros (V, VI) 401 481

Carrera, Sobre o gênero Lycomyia Bigot 423

— & d'Andretta, Descrição de um novo gênero de Mydidae do Chile e redescricao do gênero Megascelus (Apioceratidae) 489

Lane, Mycetophilinae de Boracéia, S. Paulo 231

— Ceroplatinae da região neotropical (Mycetophilidae) 437

— & Forattini, Duas novas espécies de Bibionellus Edwards 569

Parampnov, Uebersicht der Bombyliidengattung Lyophaebla Rond. 115

— Ueber die richtige Stellung der Gattungen Dolichogaster Macq. (Mydidae) und Megascelus Phil. (Apioceridae) 357

Hymenoptera

- Séguy, Sur le genre *Penquistus* (Anthomyzidae) 360
Borgmeier, Die Geschlechtstiere zweier *Eciton*-Arten und einige andere Ameisen aus Mittel- und Suedamerika (Formicidae) 191
— Einige Ameisen aus Argentinien (Formicidae) 459
Moure, Notas sobre algumas abelhas de Tacanas (Apoidea) 313

Lepidoptera

- Box, Report upon specimens of *Diatraea* Guild. in the Paris Museum, with the description of a new species from Brazil (Pyr.) 419

Hemiptera

- Carvalho, *Mirídeos neotropicais*. (XXXII) 279
Drake, American *Tingidae* 429
— & Carvalho, Concerning South American *Saldidae* 473
Wygodzinsky, Contribution towards the knowledge of the genus *Cryptostemma* Herrich-Schaeffer 283
— Sobre alguns *Reduviidae* da região amazônica 557

Thysanoptera

- Hood, Bibliography of scientific papers 499
Moulton, The genus *Frankliniella* Karny 55

Mallophaga

- Eichler, *Acutifrons chimango*, nova species *Mallophagorum* 581

rechteckig, an den Seiten mit nach hinten konvergierenden Randlinien. 4. Ventrit jederseits mit einem kuerzeren Exsudathoernchen. Prosternallobus, Kiel und 2.-3. Ventrit mit einigen zerstreuten kurzen Haerchen; auch der Hinterrand des Proepisternums weist eine Reihe feiner Haerchen auf.

Beine glatt und glaenzend, kurz, verbreitert, Schienen stark abgeflacht und am Dorsalrand geschaerft. Vorderschiene subapikal mit 3 kurzen Dornen. Alle Schienen mit Tarsalfurche. Tibie II mit undeutlichem Winkel dorsal am 1. Drittel, Tibie III dorsal abgerundet.

Laenge des Koerpers 2 mm, Breite 1,2 mm, Tibie I 0,4 mm, Tibie II 0,6 mm, Fuehlerkeule 0,15 mm.

Holotypus 1 Exemplar von Campinas, Goiás, Brasilien, Rev. P. J. S. Schwarzmaier, C. SS. R., leg. 17. Dezember 1937, in einem Zug von *Eciton (Labidus) coecum* Latr.

Anmerkung. — Beim Praeparieren des einzigen vorliegenden Exemplars loeste sich das Pronotum vom Rumpf, sodass die Zeichnungen getrennt gemacht und spaeter zusammengesetzt wurden, was bei den Abbildungen des Gesamttieres in Rechnung gezogen werden muss. Bei der Ventralansicht wurden die Vorderbeine weggelassen.

Pterotister Reichensperger

1939, Zool. Jahrb. Syst. vol. 73, p. 270, fig. 6-7.

Bisher war eine Art bekannt: *P. nevermanni* Reichensp. 1939 (p. 271), in Costa Rica bei *Eciton (Neivamyrmex) pilosum* Fred. Smith gefunden.

Pterotister schwarzmaieri, n. sp.

(Fig. 11-12; Taf. 1, Fig. 3)

Unterscheidet sich vom Genotypus durch das Fehlen der gefiederten Borstenbueschel, Bildung des Pronotums, der Sterna, etc.

Koerper kurzoval, dorsal wenig konvex, hinten steil abfallend, glaenzend kastanienrot.

Stirn vorn in der Mitte schwach eingedrueckt, glaenzend, oben und an den Seiten mit einigen langen Haaren oder Borsten, an den Seiten mit feiner Randlinie. Epistom etwas eingedrueckt. Labrum behaart, fast so lang wie breit, mit konvexem Vorderrand. Fuehlerschaft gebogen, Geisselglieder 2-7 viel breiter als lang, Keule gross, laenger als der Rest der Geissel.

Pronotum im Umriss ähnlich wie bei *nevermanni* gebildet, doch vor den Hinterecken etwas mehr eingeschnuert. Das durch die nach hinten divergierenden Furchen begrenzte Mittelfeld ist hinter der Mitte durch eine feine geschwungene Querlinie in zwei Teile

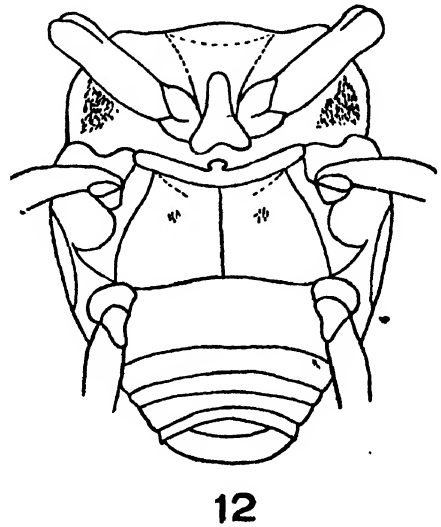
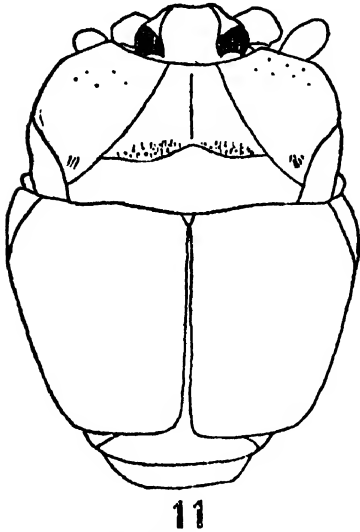


Fig. 11. *Pterotister schwarzmaleri* n. sp., Dorsalansicht. — Fig. 12. Idem, Ventralansicht. (Borgmeier del.).

gesondert; der vordere Teil ist dachfoermig und fein gekielt und traegt am geschwungenen Hinterrand Gruppen von Boerstchen, die aus groben Punkten entspringen. Seitenfelder in der Naeh der Vorderecken jederseits mit 7-8 zerstreuten Borsten und hinten oberhalb des Gruebchens mit einem kleinen Trichombueschel. Randlinie vorhanden, aber nur an den Vorderecken deutlich. Die Hinterecken bilden einen Hoecker, neben dem innen ein tiefes Gruebchen ausgebildet ist. Die Gruebchen sind durch eine seichte Furchte laengs des Hinterrandes unter sich verbunden. Schildchen klein, dreieckig.

Elytren oben ziemlich flach, zu den Seiten hin stark konvex. Es ist eine Humerallinie vorhanden, die vorn gegabelt ist. 1. Dorsallinie schwach angedeutet. Trichomborsten an den Schultern und vorn zerstreut und vereinzelt. Propygidium und Pygidium glaenzend, unbehaart.

Unterseite glatt und glaenzend, stellenweise sehr fein chagriniert punktiert. Die Bildung der Sterna geht aus der Abbildung hervor. Mesosternum schraeg nach oben gestellt. Metasternum vorn tief eingesenkt, mit Mittellinie und Randlinie, jederseits mit kleinem Trichombueschel. Prosternalkiel basal herzförmig ausge-

buchtet, mit einigen Borsten. Unter dem Seitenrand des Pronotums jederseits ein kraeftiges Trichombueschel.

Beine glaenzend. Alle Tibien mehr oder weniger lang behaart, besonders die vorderen. Tarsalfurchen vorhanden.

Koerperlaenge 1,5 mm, Breite 1 mm.

Holotypus 1 Exemplar von Campinas, Goiás, Brasilien, Rev. P. J. Schwarzmaier, C. SS. R., leg. 5. November 1937, in einem Zug von *Eciton (Neivamyrmex) pilosum* Fred. Smith.

Ecitonister Reichensperger

1923, Mitt. Schweiz. Ent. Ges. vol. 13, p. 326.

Eine sehr interessante Gattung, von der bisher vier Arten beschrieben wurden:

E. perversus Reichensp. 1923 (loc. cit. p. 327), der Genotypus, von Blumenau, S. Catarina, bei *Eciton coecum*. Laenge 2,2 mm.

E. borgmeieri Reichensp. 1931 (Zool. Jahrb. Syst. vol. 61, p. 268, fig.), von Campinas, Goiás, bei *Eciton praedator*. Laenge 2 mm.

E. latipes Reichensp. 1933 (Zool. Anz. vol. 101, p. 305, figs.), Itatiaya, bei *Eciton praedator*. Laenge 1,5 mm.

E. ogloblini Bruch, 1933 (Rev. Ent., Rio de Janeiro, vol. 3, p. 34, figs.), Loreto, Misiones, Argentinien, bei *Eciton coecum*. Laenge 3,2 mm.

Im Folgenden mache ich eine fuenfte Art bekannt, die bei *Eciton pseudops* in Goiás gefunden wurde.

Allen Arten gemeinsam ist die kurzovale Gestalt, die eigenartige Bildung des Pronotums, des Prosternums und die starke Verkuerzung der abdominalen Ventrile 2-4. Die Bildung des Metasternums ist fast bei jeder Art verschieden. Ebenso variiert das Auftreten von Trichomen auf der Unterseite.

Ecitonister sericeus, n. sp.

(Fig. 13; Taf. 1, Fig. 3)

Diese neue Art unterscheidet sich von den bisher beschriebenen durch die halbmatten, seidigen Fluegeldecken, durch hoehere und im Umriss rundere Gestalt, Bildung der Sterna, geringe Tendenz zur Ausbildung von Trichomen, etc.

Faerbung kastanienbraun. Pronotum auf der vorderen Haelfte und an den Seiten spiegelglatt und stark glaenzend; der Rest des Pronotums sowie die Elytren sind von mattem, seidigen Glanz.

Koerper rundlich kurzoval, hinten staerker konvex, sehr spaerlich und zerstreut behaart.

Stirn vom Clypeus nicht getrennt, mit schwach erhobenem fein punktierten Seitenrand, der eine Randlinie aufweist und vorn in einen kleinen stumpfen Hoecker endet; hinten und in der Mitte ist die Stirn rugoes punktiert, an den Seiten glatt. Labrum glatt und glaenzend, vorn ausgebuchtet. Fuehler mit grossem kantigen Schaft, Geisselglieder 2-7 viel breiter als lang, Keule laenger als die uebrige Geissel, auf der Vorderseite kurz und dicht pubeszent mit Ausnahme eines schmalen Laengstreifens, der nackt ist. Mandibeln kraeftig.

Pronotum vorn weniger verengt als bei den uebrigen Arten, auf der vorderen Haelfte und an den Seiten mit starkem Glanz, hinten matt seidig glaenzend, mit wenigen haartragenden Punkten, Voerderecken dichter behaart, auch vor den Hinterecken am Seitenrand eine Reihe Haare. Das ganze Pronotum ist von einer Randlinie eingefasst; hinter dieser Randlinie liegt am vorderen Kopfausschnitt eine zweite Linie, welche die ganze Breite des Pronotums durchlaeuft und vor den behaarten Voerderecken vorbeigeht; beim Beginn des Ausschnitts trifft sich diese Linie mit der feinen S-foermigen Laterallinie, welche in ziemlichem Abstand von den Seiten ueber die glatten schwach gewoelbten Seitenraender verlaeuft und bis zum Hinterrand reicht. Schildchen sehr klein, glaenzend.

Elytren breiter als an der Naht lang (48:33), sehr fein chagriniert und laengsgerunzelt, fast nackt. Es sind zwei feine gebogene Subhumerallinien vorhanden, die an der Humerallinie entspringen. Alle Streifen undeutlich, durch feine Doppellinien dargestellt; 1. Dorsalstreif komplett, 2. apikal verkuemmert, 3.-4. Streif und Suturalstreif apikal und basal verkuerzt, 5. Streif nur hinten durch ein Rudiment angedeutet.

Propygidium quer sechseckig, mit feiner Punktierung und Runzelung. Pygidium vorn gerade abgeschnitten, hinten konvex, punktiert, in der Mitte glatter, spaerlich behaart.

Die Bildung der Sterna geht aus der Abbildung hervor. Der Prosternalkiel ist fast parallelsichtig, zwischen den Vorderhueften etwas eingeschnuert und daselbst fein chagriniert und gerandet, basal herzfoermig erweitert und ausgebuchtet; das apikale Drittel faellt zum Lobus sanft ab und ist vom uebrigen Kiel durch eine mehr oder weniger deutliche Linie getrennt; Apex des Kiels knopffoermig erweitert und vom leicht konvexem Vorderrand des Lobus durch eine feine Furche getrennt. Lobus mit feiner Rand-

linie. Seiten des Kiels glatt, jederseits mit einer Grube am vorderen Drittel, zu der vom Apex und von der Basis des Kiels divergierende Furchen ziehen. Mesosternum vorn mit maessigem konvexem Fortsatz; Randlinie geschwungen und an den Seiten

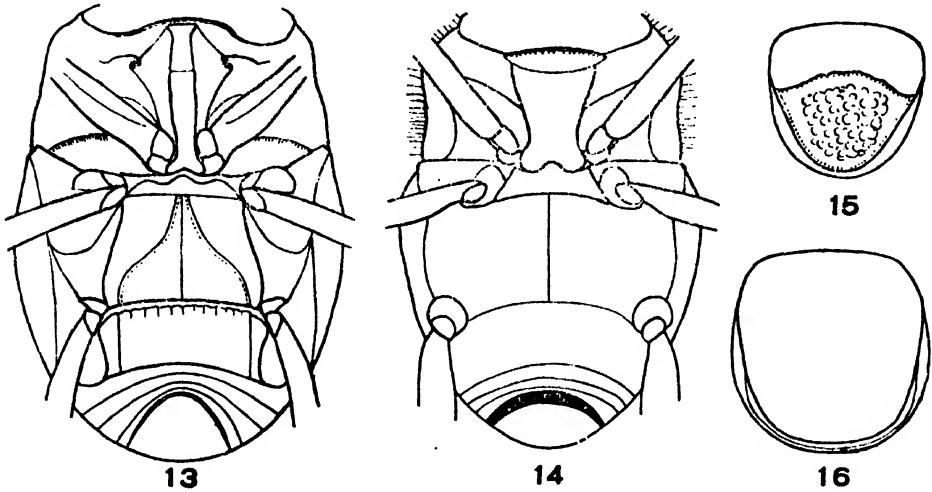


Fig. 13. *Ectonister sericeus* n. sp., Ventralansicht. — Fig. 14. *Synettister pillosus* Reichensperger, Ventralansicht. — Fig. 15. *Mesynodites virgatus* Reichensp. ♂, Pygidium. — Fig. 16. Idem, ♀, Pygidium. (Borgmeyer del.)

meist undeutlich. Metasternum hinten etwas breiter als in der Mitte lang, mit deutlicher Mittellinie. Randlinie zuweilen verdoppelt, in der Mitte des Vorderrandes beginnend und S-förmig geschwungen zu den Hinterecken gehend. Das 1. Ventrit ist gross und fein gestreift-punktiert und am Vorderrand von einer gezackten Randlinie begleitet; Seitenrandlinie gerade. Meso- und Metasternum sind fein chagriniert, mattglaenzend, der von den Randlinien eingefasste Bezirk des Metasternums ist glatter und glaenzender.

Alle Beine sind stark abgeflacht. Tibie I auf der Aussenseite punktiert, dorsal mit 7 kurzen Dornen. Tarsen stark komprimiert. Tarsalfurchen aller Beine deutlich. Tibie II schwach gekniet, III dorsal konvex. Alle Tibien ventral mit einer Reihe kurzer Haare. Pubeszenz zerstreut.

Laenge (ohne Kopf) 2,8 mm, Breite 1,4 mm.

Typen: 2 Exemplare von Campinas, Goiás, Brasilien, Rev. P. J. Schwarzmaier, C. SS. R., leg. 16. November 1938, bei *Écton*, (*Neivamyrmex*) *pseudops* Forel; 1 Exemplar von Trindade, Goiás, Brasilien, Schwarzmaier leg. 26. September 1936, bei *Eciton pseudops*. Die ersten beiden Exemplare in meiner Sammlung; das letztere in Coll. Reichensperger.

Clientister Reichensperger

1935, Arb. morph. tax. Ent., vol. 2, p. 192, Taf. 3, Fig. 4.

Diese Gattung ist besonders bemerkenswert durch das jederseits in den Seitenwinkeln des Propygidiums vorhandene Exsudathoernchen, das wahrscheinlich als myrmecophile Anpassung zu deuten ist. Aehnliche Organe, aber in Anzahl von vier (2 jederseits) kommen bei den oben beschriebenen neuen Gattungen *Nomadister* und *Tubulister* vor. Da die drei genannten ecitophilen Gattungen keinerlei naechere Verwandtschaft aufweisen, scheint die Anlage zu solchen Bildungen nicht vereinzelt zu sein. Bis jetzt wurden sie allerdings selten beobachtet.

Von der Gattung *Clientister* wurden bisher zwei Arten beschrieben: *henrici* Reichensp. 1935 (loc. cit.), bei *Eciton burchelli* Westw. gefunden; und *fernandi* Reichensp. 1938 (Rev. de Ent. vol. 9, p. 86), bei *Eciton hamatum* Fabr. gefunden. Beide stammen von Costa Rica.

Clientister henrici Reichensperger

1935, Arb. morph. tax. Ent., vol. 2, p. 192.

Mir liegen vier Exemplare von der Typenlokalitaet (San José, Costa Rica) vor, H. Schmidt leg. XII.1934 und 1940, bei *Eciton burchelli* Westw. Alle Exemplare, mit Ausnahme von einem, sind stark "abgeweidet" und tragen nur noch vereinzelte Borsten.

Die eigentuemlichen Hoernchen des Propygidiums sind von konischem Bau; sie sind nach hinten und schwach nach aussen und unten gerichtet; der Apex ist schief abgestutzt und weist eine zirkulare Oeffnung auf. Von diesem Organ schreibt Reichensperger (loc. cit. p. 193): "Sie zeigen sich in beiden Geschlechtern und sind von einem nach unten sich oeffnenden Kanal zurchzogen. Dieser laesst sich bei aufgehellten Praeparaten weit ins Chitin verfolgen und er laeuft innen in einen Druesenkomplex aus, dessen histologischer Bau noch nicht naeher untersucht wurde; dass es sich um Exsudatororgane handelt, aehnlich den Kopfhoernchen der Paussiden, unterliegt keinem Zweifel".

Aphanister Reichensperger

1933, Zool. Anz. vol. 101, p. 302.

Eine sehr interessante Gattung, mit bisher einer Art. Die Feldereinteilung des Pronotums erinnert in etwa an *Pterotister*,

obschon keine naehere Verwandtschaft bestehen duerfte. Sehr charakteristisch ist die stufenfoermige Bildung des Prosternums, mit der tiefen basalen Aushoehlung.

Aphanister fungifer Reichensperger

1933, Zool. Anz. vol. 101, p. 303, fig. 2-3.

Bisher war nur der Holotypus bekannt, der von Nevermann in San José, Costa Rica, bei *Eciton hamatum* gefunden wurde. Mir liegen zwei Exemplare vor von Hamburgfarm, San José, Costa Rica, Nevermann leg. 30.6.1938, ebenfalls bei *Eciton hamatum*. Die der Originalbeschreibung beigegebene Fotografie (Fig. 3) tauscht auf den Seitenraendern eine S-foermige Furche vor, die durch Reflex bei der Beleuchtung entstanden sein wird. In Wirklichkeit sind die Seitenraender so, wie die Beschreibung angibt: "schwach konvex". Unter den Seitenraendern des Pronotums befindet sich jederseits eine kleine trompetenfoermige Anschwellung. Die Ventrile sind, abgesehen vom ersten, stark verkuerzt, sodass der apikale Rand des Pygidiums fast direkt an den Hinterrand des 1. Ventrits zu liegen kommt (cf. Fig. 2 bei Reichensperger).

Symphilister Reichensperger

1923, Mitt. Schweiz. Ent. Ges. vol. 13, p. 323.

Von dieser "ganz ausgezeichneten Gattung, welche in exsudativer Anpassung an ihre Wirte alle bisher bekannten Histeriden, und sogar die meisten Paussiden weit uebertrifft" (Reichensperger), sind bisher zwei Arten beschrieben, welche in meiner Sammlung vertreten sind.

Symphilister collegianus Reichensperger

1923, Mitt. Schweiz. Ent. Ges. vol. 13, p. 325, fig. 7.

Die Typen dieser Art stammen von Blumenau, S. Catarina, und wurden bei *Eciton burchelli* gefunden. Mir liegt 1 Exemplar vom Itatiaya (700 m) vor, das ich Freund J. F. Zikán verdanke (6.IV.1925, bei *E. burchelli*). "Das ganze Tier ist sozusagen ein einziges Exsudatorgan" (Reichensperger).

Eine Varietaet dieser Art, dunkler gefaerbt, erhielt ich von H. Schmidt aus Costa Rica (ohne Wirtsangabe, 1940). Ich hielt das Exemplar zunaechst fuer eine neue Art, aber Reichensperger

schreibt mir (9.IX.1948): "Ich bin ueberzeugt, dass es sich um *S. collegianus* var. handelt, den ich in einer meiner letzten Arbeiten erwahnte. Diese Art, von der ich eine Reihe Stuecke aus Brasilien und Costa Rica besitze, variiert in Ausbildung der Skulptur und vor allem der Behaarung erheblich, wobei die Haarbueschel die Tendenz zur Verschmelzung zeigen".

Bei neuem Vergleich meiner beiden Exemplare ergab sich, dass die Tibien II und III des Exemplares vom Itatiaya auf der apikalen Haelfte an der Aussenseite eine flache Laengsfurche besitzen, die bei dem Exemplar von Costa Rica fehlt. Auch scheint mir die relative Laenge des Hintertarsus verschieden: bei dem Exemplar vom Itatiaya etwas laenger als $1/2$ Tibie III; bei dem vom Costa Rica gleich $2/3$ der Tibie III. Es ist deshalb doch nicht ausgeschlossen, dass es sich um eine verschiedene Art (oder Unterart) handelt, besonders auch, weil *collegianus* und *hamati*, die spezifisch verschieden sind, sich so nahestehen, dass ihre Unterschiede schwer fassbar sind. Mein Material ist jedoch zu gering, um sichere Folgerungen zu ziehen.

Symphilister hamati Reichensperger

1929, Zool. Anz. vol. 82 (Wasmann-Festband), p. 259.

Ein Exemplar dieser Art, das wahrscheinlich zusammen mit den Typen gefangen wurde, verdanke ich Herrn Zikán: São Gabriel, Rio Negro, Amazonas, 26.VIII.1929, Zikán leg. bei *Eciton hamatum*, mit der Bemerkung: "Von Eciton getragen".

Synetister Reichensperger

1924, Rev. Suisse Zool. vol. 31, p. 142.

Von dieser ausgezeichneten Gattung, die sicher zum Symphilentypus gehoert und "auf einer sehr hohen Stufe des Gastverhaeltnisses steht", wurde bisher eine Art beschrieben.

Synetister pilosus Reichensperger

1924, Rev. Suisse Zool. vol. 31, p. 142, Taf. 4, Fig. 3.

Dieser interessante *Eciton*-Gast war bisher in nur einem Exemplar, dem Holotypus, bekannt, der in der Serra dos Cochos, Minas, bei *Eciton (Neivamyrmex) pilosum* Fred. Smith von Herrn Zikán gefunden wurde. Mein Freund P. Schwarzmaier fand die Art bei derselben Wirtsameise im Januar 1946 in Pindamonhan-



Fig. 1. *Nomadister papillatus* n.g.n.sp.



Fig. 2. *Tubulister curvipilosus* n.g.n.sp.



Fig. 3. *Ecitonister sericeus* n. sp.



Fig. 4. *Pterotister schwarzmaieri* n. sp.

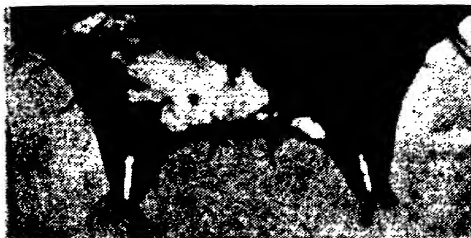


Fig. 5. *Tubulister curvipilosus* n. g. n. sp. Hinterleibsende, dorsal gesehen.
(Borgmeier fot., Kine-Exakta, Zeiss Microtar 2 cm.)

gaba, Staat São Paulo, wieder. Mir liegen 14 Exemplare vor, von denen zwei in Coll. Reichensperger deponiert wurden, der die Bestimmung bestaetigte.

Der Holotypus, auf den Reichensperger seine Beschreibung gruendete, stammte aus der Sammlung Wasmann's und war wohl aufgeklebt, weshalb Reichensperger ueber die Sternalbildung nichts mitteilen konnte. Ich gebe deshalb eine Figur der Ventralseite. Der Prosternalkiel ist breit und scharf gerandet, und von der Kehlplatte durch eine feine Sutura getrennt. Die kurze Kehlplatte ist vorne breit konvex und zeigt eine punktierte Randlinie. Die Vorderhuetten sind sehr fein laengsgestreift und genetzt chagriniert und etwas blasser als die sonst stark glaenzende Ventralseite. Unter dem Seitenrand des Prothorax befindet sich jederseits ein kraeftiges goldgelbes Trichombueschel. Das Mesosternum ist trapezfoermig und zeigt vorn in der Mitte einen rundlichen Fortsatz, der in die ausgebuchtete Basis des Prosternalkiels passt. Die Meso-metasternalisutur ist sehr fein und wegen des starken Glanzes schwer sichtbar. Metasternum glatt, fein genetzt, mehr oder weniger glaenzend, ohne grobe Punkte, sehr breit, seitlich bis zur Episternalisutur reichend, ohne Randlinien and den Seiten, aber mit deutlicher Mittellinie. Die Hinterbeine sind stark nach hinten verlagert. Das 1. Ventrit ist etwa $1/2$ so lang wie das Metasternum, stark querkonvex und ohne Randlinien. Die uebrigen Ventrite sind stark verkuerzt.

Die Laenge variiert zwischen 2,6 und 3,1 mm. Es ist mir nicht gelungen, die beiden Geschlechter mit Sicherheit zu unterscheiden. Wahrscheinlich sind die kleineren Exemplare Maennchen.

Die Geisselglieder 2-7 sind quer und nehmen an Breite schnell zu; die Keule ist gross, etwa so lang wie die Geisselglieder 2-7 zusammen, und auf der ganzen Vorderseite mit dichter gelblichweisser Pubeszenz bedeckt.

Sternocoelopsis Reichensperger

1933, Mitt. Schweiz. Ent. Ges. vol. 13, p. 328.

Von dieser ecitophilen Gattung sind bisher vier Arten beschrieben worden. Alle wurden bei *Eciton* s. str. gefangen. Drei derselben sind im Folgenden erwaeht. Die vierte (*nevermanni* Reichensp.) ist mir unbekannt; sie stammt aus Costa Rica und wurde bei *E. burchelli* gefunden.

Sternocoelopsis veselyi Reichensperger

Reichensperger 1923, Mitt. Schweiz. Ent. Ges. vol. 13, p. 330; 1923, Zs. wiss. Insekt. Taf. 3, Fig. 7; 1936, Arb. phys. angew. Ent. vol. 3, p. 188, fig. 5.

Diese Art ist der Gattungstyp und wurde nach einem Exemplar beschrieben, das von Blumenau stammt und bei *E. burchelli* gefangen wurde. Mir liegen zwei Exemplare aus Costa Rica vor, die ich zunaechst fuer n. sp. hielt. Ich sandte eine Fotografie an Reichensperger, der mir Folgendes mitteilte (9.IX.1948): "In Costa Rica ist *St. veselyi* verhaeltnismaessig haeufig und variiert in beiden Geschlechtern. Es finden sich bei manchen Exemplaren geringe, bei andern staerkste Umbildungen, die ich gezeichnet und verglichen habe. Nach Ihrer Beschreibung und dem vorzueglichen Negativ, das Sie sandten, ist das Tier mit absoluter Sicherheit *St. veselyi*. Die Art hat keine Spur von Trichomen, aber eine ganze Anzahl Stuecke geben sich Muehe, etwas Derartiges vorzubereiten".

Sternocoelopsis auricomus Reichensperger

Ich besitze ein Exemplar von der Typenlokalitaet (Rio Negro, Paraná), das ich Herrn Prof. Reichensperger verdanke. Es wurde bei *Eciton quadriglume* Hal. gefunden. Die Art ist besonders charakterisiert durch die langen goldgelben Trichomhaare, welche auf der inneren Randrinne des Halsschildes stehen und die nach hinten zu dichter und laenger werden.

Sternocoelopsis subglabricollis Bruch

1926, Rev. Mus. La Plata, vol. 29, p. 25, fig. 7-8.

Der Riese der Gattung, circa 4 mm lang. Der Holotypus stammt von La Granja, Alta Gracia, Argentinien und wurde bei *Eciton dulcius* For. gefunden. Bruch gibt zwar als Gast die var. *jujuyense* For. an, aber diese Varietaet halte ich fuer ein Synonym der typischen Art (vide Borgmeier, Rev. de Ent., vol. 10, 1939, p. 406). Von *St. subglabricollis* liegen mir zahlreiche Exemplare von Campinas, Goiás, vor, die P. Schwarzmaier in Zuegen von *Eciton dulcius* sammelte. Bei einem Exemplar (vom 27.X.1933) fand sich folgende Notiz des Sammlers: "Am Nesteingang umherlaufend; dann im Innern verschwindend, darauf wieder erscheinend und von einer Ameise am Nesteingang umhergetragen".

Mesynodites Reichardt

1924, Ent. Blätter, vol. 20, p. 166 (n. n. pro *Synodites* Schmidt, 1893).
Reichensperger, 1931, Zool. Jahrb. Syst. vol. 61, p. 265; 1939, Rev. de Ent. vol. 10, p. 97.

Von dieser schwierigen Gruppe wurden bereits ueber 50 Arten beschrieben, die wahrscheinlich alle myrmecophil sind. Die meisten wurden bei *Eciton* gefunden. Ueberhaupt stellt diese Gattung das Hauptkontingent der ecitophilen Histeridenfauna dar. In der nachfolgenden Liste habe ich die in der Literatur vorhandenen Angaben bezueglich Fundort und Wirt zusammengestellt und zum Teil auf Grund Materials meiner Sammlung vervollstaendigt.

Mesynodites s. str.

M. acamati Reichensperger (1939, Rev. Ent. 10, p. 124), Farm La Caja, Costa Rica, bei *Eciton* (*Neivamyrmex*) sp.

M. aciculatus Schmidt (Deut. Ent. Zs. 1893, p. 179; *Synodites*), Brasilien, ohne Wirtsangabe.

M. affinis Reichensperger (1931, Zool. Jahrb. Syst. 61, p. 283), Campinas, Goiás, bei *Eciton* (*Nomamyrmex*) *crassicornis* F. Smith; 1 Ex. bei *E. (Labidus) coecum* Latr. In meiner Sammlung durch 2 Cotypen und zahlreiche Ex. von der Typenlokalitaet vertreten.

M. arcanus Reichensperger (1939, Rev. Ent. 10, p. 122), Farm La Caja, Costa Rica, bei *Eciton* (*Neivamyrmex*) sp. (Nr. 103, Coll. Reichensperger) und bei *E. coecum* Latr.

M. attaphilus Bruch (1933, Rev. Ent. 3, p. 32, fig.), Loreto, Misiones, Argentinien, bei *Atta sexdens* L.

M. bifurcatus Mann (1925, Psyche, 32, p. 170; *Synodites*), Canal Zone, bei *Eciton* (s. str.) *hamatum* Fabr.

M. ciliatus Bruch (1923, Rev. Mus. La Plata, 27, p. 192, fig.; *Synodites*), Alta Gracia, Córdoba, Argentinien, bei *Eciton* (s. str.) *dulcius* For. In meiner Sammlung durch 2 Ex. von Alta Gracia, Córdoba und zahlreiche Stuecke von Campinas, Goiás vertreten, die bei demselben Wirt gefangen wurden.

M. collaris Reichensperger (1939, Rev. Ent. 10, p. 110), Nova Teutonia, S. Catarina, Brasilien, bei *Eciton* (*Labidus*) *praedator* F. Smith.

M. confirmatus Reichensperger (1935, Arb. morph. tax. Ent. 2, p. 194, fig.), Hamburgfarm und Farm La Caja, Costa Rica, bei *Eciton* (s. str.) *burchelli* Westw.

M. detritus Schmidt (1893, Deut. Ent. Zs. p. 180; *Synodites*), Mexiko, ohne Wirtsangabe.

M. diadochus Reichensperger (1939, Rev. Ent. 10, p. 113), Nova Teutonia, S. Catarina, bei *Eciton* (*Labidus*) *praedator* F. Smith und *E. (s. str.) quadriglume* Hal.

M. drakei Schmidt (1893, Deut. Ent. Zs. p. 179; *Synodites*), Bolivien, ohne Wirtsangabe.

M. ecitonis Bruch (1923, Rev. Mus. La Plata, 27, p. 190, fig.; *Synodites*), Alta Gracia, Córdoba, Argentinien, bei *Eciton* (s. str.) *dulcius* For. Nach Reichensperger (1938, Rev. Ent. 9, p. 90) auch in Campinas, Goiás gefunden bei *Eciton* (s. str.) *rogeri* D. T. und *E. (Neivamyrmex) pseudops* For. In meiner Sammlung befinden sich 3 Ex. von Cabana (Unquillo), Córdoba, Argentinien, Bruch leg. I. 1926 (Bruch det.).

M. elegantulus Reichensperger (1939, Rev. Ent. 10, p. 115), Nova Teutonia, S. Catarina, bei *Eciton* (*Labidus*) *praedator* F. Smith.

M. eidmanni Reichensperger (1935, Rev. Ent. 5, p. 28, fig.), Mendes, Staat Rio de Janeiro, bei *Atta sexdens* L.

M. evanescens Reichensperger (1935, Rev. Ent. 5, p. 31, fig.), Mendes, Staat Rio de Janeiro, bei *Atta sexdens* L. In meiner Sammlung durch ein Exemplar von der Typenlokalität vertreten (Eidmann leg.).

M. exclamationis Reichensperger (1931, Zool. Jahrb. Syst. 61, p. 279), Campinas, Goiás, bei *Eciton* (*Nomamymex*) *schlechtendali* Mayr. Bisher wurd nur der Holotypus bekannt.

M. genuinus Reichensperger (1935, Arb. morph. tax. Ent. 2, p. 193), Hamburgfarm, Costa Rica, bei *Eciton* (s. str.) *burchelli* Westw.

M. gibbidorsum Schmidt (1893, Deut. Ent. Zs. p. 180; *Synodites*), Mexiko, ohne Wirtsangabe.

M. graniformis Schmidt (1893, Deut. Ent. Zs. p. 181; *Synodites*), Mexiko, ohne Wirtsangabe.

M. inops Reichensperger (1935, Arb. morph. tax. Ent. 2, p. 196, fig.), Hamburgfarm, Costa Rica, bei *Eciton* (s. str.) *burchelli* Westw.

M. intermedius Reichensperger (1933, Rev. Ent. 3, p. 190), Campinas, Goiás, bei *Eciton* (*Labidus*) *coecum* Latr. Beschrieben nach einem Exemplar. In meiner Sammlung befindet sich ein Ex. von der Typenlokalität, das von Prof. Reichensperger bestimmt wurde.

M. irregularis Reichensperger (1938, Rev. Ent. 9, p. 88, fig.), Campinas, Goiás, bei *Eciton* (s. str.) *dulcius* For.

M. longipilus Reichensperger (1931, Zool. Jahrb. Syst. 61, p. 270), Campinas, Goiás, bei *Eciton* (s. str.) *dulcius* For. Beschrieben nach einem Exemplar. In meiner Sammlung durch 3 Exemplare von der Typenlokalität vertreten, die bei derselben Ameise gefangen wurden.

M. maior Bruch (1923, Rev. Mus. La Plata, 27, p. 189, fig.; *Synodites*), Alta Gracia, Córdoba, bei *Eciton* (s. str.) *dulcius* For. In meiner Sammlung durch 1 Ex. vertreten, das von Cabana (Unquillo), Córdoba stammt, Bruch leg. 1926.

M. maior v. *crassicornis* Reichensperger (1931, Zool. Jahrb. Syst. 61, p. 282), Campinas, Goiás, bei *Eciton* (*Nomamymex*) *crassicorne* F. Sm. Ich besitze eine Cotype und ein weiteres Exemplar von Campinas.

M. manicus Reichensperger (1939, Rev. Ent. 10, p. 121), Farm La Caja, Costa Rica, bei *Eciton* (*Labidus*) *coecum* Latr.; und Nova Teutonia, S. Catarina, bei *Eciton* (L.) *praedator* F. Sm.

M. megacantha Reichensperger (1938, Rev. Ent. 9, p. 90, fig.), Bela Vista, Goiás, bei *Eciton* (*Nomamymex*) *crassicorne* F. Sm.

M. nanus Reichensperger (1939, Rev. Ent. 10, p. 118), Hamburgfarm, Costa Rica, bei *Eciton* (*Labidus*) *praedator* F. Sm.

M. nitidus Reichensperger (1923, Zs. wiss. Insektenbiol. 18, p. 244, fig.; *Synodites*), Rio Negro, Paraná, bei *Eciton* (s. str.) *quadriglume* Hal. Reichensperger erwahnt die Art (1931, p. 265) auch vom Staate Rio de Janeiro. Mir liegen 2 Ex. von der Typenlokalität vor.

M. novae-teutoniae Reichensperger (1939, Rev. Ent. 10, p. 109), Nova Teutonia, S. Catarina, bei *Eciton* (*Labidus*) *praedator* F. Sm.

M. obscurus Reichensperger (1939, Rev. Ent. 10, p. 119), Hamburgfarm, Costa Rica, bei *Eciton* (*Labidus*) *praedator* F. Sm.

M. praeculus Reichensperger (1939, Rev. Ent. 10, p. 112), Nova Teutonia, S. Catarina, bei *Eciton* (L.) *praedator* F. Sm.

M. pumilus Reichensperger (1925, Verh. III. Ent. Kongr. 2, p. 192), Passa Quatro, Minas Gerais, Brasilien, bei *Eciton* (L.) *praedator* F. Sm.

M. reticulatus Bruch (1926, Rev. Soc. Ent. Arg. 1, n. 2, p. 8, fig.),

Cabana, Córdoba, Argentinien, bei *Eciton* (s. str.) *dulcius* For. Ich besitze 1 Ex. von der Typenlokalität, Bruch leg. 1.1926.

M. robustus Reichensperger (1939, Rev. Ent. 10, p. 107), Nova Teutonia, S. Catarina, bei *Eciton* (L.) *praedator* F. Sm.

M. scaber Reichensperger (1931, Zool. Jahrb. Syst. 61, p. 275), Campinas, Goiás, bei *Eciton* (*Nomamyrmex*) *schlechtendali* Mayr und *E. (N.) crassicornis* F. Sm. Ich besitze 2 Cotypen und zahlreiche Stuecke von Campinas, bei *E. crassicornis* gefunden. Ferner 1 Ex. von Pindamonhangaba, Staat S. Paulo, Schwarzmaier leg. bei *E. crassicornis*.

M. schmidtii Lewis (1893, Ann. Mag. Nat. Hist. (6) vol. 11, p. 423; *Synodites*), Brasilien, ohne Wirtsangabe.

M. schuppi Schmidt (1893, Deut. Ent. Zs. p. 177; *Synodites*), Rio Grande do Sul, bei *Eciton* (L.) *praedator* F. Sm. Nach Reichensperger (1931, p. 265) auch im Staate Rio de Janeiro gefunden. Ich besitze ein von Reichensperger determiniertes Stueck von Campinas, Goiás, Schwarzmaier leg. bei *Eciton* (L.) *coecum* Latr.

M. schwarzmaieri Reichensperger (1931, Zool. Jahrb. Syst. 61, p. 277), Inhaumas, Goiás, bei *Eciton* (*Nomamyrmex*) *crassicornis* F. Sm.

M. semistriatus Bruch (1933, Rev. Ent. 3, p. 30, fig.), Loreto, Missiones, Argentinien, bei *Atta sexdens* L.

M. setulosus Reichensperger (1923, Zs. wiss. Insektenbiol. 18, p. 244, fig.; *Synodites*), Rio Negro, Paraná, bei *Eciton* (s. str.) *quadriglume* Hal. Ich besitze 3 Ex. von der Typenlokalität, Reichensperger det. Auch im Staate Rio de Janeiro gefunden (Reichensp. 1931, p. 265).

M. sodalis Reichensperger (1924, Zool. Anz. 60, p. 209; *Synodites*), Rio Negro, Paraná, bei *Eciton* (s. str.) *quadriglume* Hal.

M. speculum Reichensperger (1931, Zool. Jahrb. Syst. 61, p. 280), Inhaumas, Goiás, bei *Eciton* (*Nomamyrmex*) *crassicornis* F. Sm.

M. splendus Reichensperger (1924, Zool. Anz. 60, p. 211; *Synodites*), Rio Negro, Paraná, Typen bei *Eciton* (s. str.) *quadriglume* Hal.; ferner von Alta Gracia, Córdoba, Argentinien, bei *Eciton* (s. str.) *dulcius* For. und *E. (Neivamyrmex) pseudops* For. In der Liste der Wirte, die Reichensperger 1931 veröffentlichte, fehlt der Hinweis auf *E. pseudops*.

M. striatus Reichensperger (1923, Zs. wiss. Insektenbiol. 18, p. 245), Blumenau, S. Catarina, bei *Eciton* (s. str.) *burchelli* Westw.

M. strigilatus Reichensperger (1931, Zool. Jahrb. Syst. 61, p. 274), Campinas, Goiás, bei *Eciton* (*Nomamyrmex*) *schlechtendali* Mayr. Von dieser Art besitze ich eine Cotype.

M. verruculosus Reichensperger (1939, Rev. Ent. 10, p. 126), Hamburg-farm, Costa Rica, bei *Eciton* (*Labidus*) *praedator* F. Sm.

M. virgatus Reichensperger (1931, Zool. Jahrb. Syst. 61, p. 272), Campinas, Goiás, bei *Eciton* (*Labidus*) *coecum* Latr. Auf diese interessante Art gehe ich unten naeher ein.

Mesynodites (Subg. *Alloiodites* Reichensperger, 1939)

M. dispar Reichensperger (1939, Rev. Ent. 10, p. 104), Nova Teutonia, S. Catarina, bei *Eciton* (*Labidus*) *praedator* F. Sm.

M. plaumanni Reichensperger (1939, Rev. Ent. 10, p. 99), Nova Teutonia, S. Catarina, bei *Eciton* (L.) *praedator* F. Sm. Von dieser Art erhielt ich 1 Ex. von Prof. Reichensperger, das von der Typenlokalität stammt.

M. regulus Reichensperger (1939, Rev. Ent. 10, p. 102), Nova Teutonia, S. Catarina, bei *Eciton* (L.) *praedator* F. Sm.

Mesynodites (Subg. *Monotonodites* Reichensperger, 1939)

M. levis Reichensperger (1939, Rev. Ent. 10, p. 132), Farm La Caja, Costa Rica, bei *Eciton* (*Neivamyrmex*) sp. (Nr. m 22 und 103 der Coll. Reichensperger).

M. subopacus Reichensperger (1939, Rev. Ent. 10, p. 133), Farm La Caja, Costa Rica, bei *Eciton* (*Neivamyrmex*) sp.

Mesynodites (Subg. *Metasynodites* Reichensperger, 1930)

M. legionarius Reichensperger (1929, Ent. Blaetter, 25, p. 133, fig.), Rio Negro, Paraná, bei *Eciton* (*Neivamyrmex*) *legionis* F. Sm. In meiner Sammlung durch 2 Ex. vertreten (Rio Negro).

M. minor Reichensperger (1931, Zool. Jahrb. Syst. 61, p. 269), Rio Negro, Paraná, bei *Eciton* (*Neivamyrmex*) *legionis* F. Sm. Ich besitze zahlreiche Ex. von der Typenlokalitaet, die von Reichensperger determiniert wurden.

M. paschalis Reichensperger (1930, Ent. Blaetter, 26, p. 84), Rio Negro, Paraná, bei *Eciton* (*Neivamyrmex*) *legionis* F. Sm. In meiner Sammlung durch zahlreiche Ex. vertreten, die alle von Rio Negro stammen und bei demselben Wirt gefunden wurden (Reichensperger det.).

Mesynodites virgatus Reichensperger

1931, Zool. Jahrb. Syst. 61, p. 272, Fig. 2, Taf. 5, Fig. 4 (♂♀).

Von dieser durch ihren sexuellen Dimorphismus sehr bemerkenswerten Art liegen mir zahlreiche Exemplare beider Geschlechter von der Typenlokalitaet (Campinas, Goiás), vor, die von P. Schwarzmaier in den Jahren 1935-1938 bei *Eciton* (*Labidus*) *coecum* Latr. gefangen wurden. Bei einer Gelegenheit (10.IV. 1937) erbeutete der Sammler 25 Maennchen und 13 Weibchen, ueber deren Zusammengehoeerigkeit ich keinerlei Zweifel habe. Die Art ist durch die Bildung des Pygidiums (♂) und des Metasternums (♀) leicht kenntlich. Ich besitze 5 Stuecke, die von Prof. Reichensperger determiniert wurden. Davon sind 3 Maennchen und gehoeren sicher zu dieser Art; die beiden uebrigen zeigen am Seitenrand des Pygidiums eine leichte kielartige Erhoehung und gehoeren zweifellos einer anderen Art an. Es gibt nach meiner Ansicht nahestehende Arten, die in der Skulptur der Oberseite *virgatus* tauschend aehnlich sind.

Der sexuelle Dimorphismus beschraenkt sich nicht etwa auf die Bildung des Pygidiums, sondern zeigt sich auch in der Form des Meso-Metasternums, welches beim Weibchen auf den vorderen zwei Dritteln breit niedergedrueckt ist, waehrend es beim Maennchen wie gewoehnlich leicht querkonvex ist. Die Form des maennlichen Pygidiums geht aus der Abbildung hervor. Es ist

dreieckig mit breit abgerundeten Ecken und ist durch eine nach hinten konkave Querleiste in zwei Teile zerlegt: einen kuerzeren Vorderteil, der glatt ist; und einen laengeren hinteren Teil, der laengs der Raender von einer tiefen Furche umgeben ist und dessen mittlere Partie von unregelmassigen Warzen besetzt ist, die bei Seitenansicht zum Teil ueber das Profil der Raender hinwegragen. Der warzenartige Tuberkel hinten am Propygidium des Maennchens variiert an Groesse und fehlt zuweilen ganz; am besten ist er im Profil sichtbar. Das Pygidium des Weibchens (siehe Abbildung) ist von gewoehnlicher Bildung, gross und hinten breit konvex, glatt und glaenzend. Der von Reichensperger erwachte und gezeichnete flache Quereindruck hinter dem breitstumpfen Vorsprung des Mesosternums ist sehr seicht und nur durch die feinen Randlinien mehr oder weniger feststellbar.

Bibliographie.

- Borgmeier, T., 1929, Um novo Histerideo ecitophilo. — Bol. Biológico, S. Paulo, Fasc. 16, pp. 85-91, fig. 1-5.
- 1939, Nova contribuição para o conhecimento das formigas neotropicais (Hym. Formicidae). — Rev. de Ent., Rio de Janeiro, vol. 10, pp. 403-428, 19 figs.
- Bickhardt, H., 1916-17, Fam. Histeridae. — Gen. Ins. Fasc. 166, 302 pp., 15 pls.
- Bruch, C., 1923, Estudios mirmecológicos. — Rev. Mus. La Plata, vol. 27, pp. 172-220, 17 figs., 6 pls.
- 1926, Coleópteros mirmecófilos de Córdoba. — Rev. Soc. Ent. Arg. vol. 1, n. 2, pp. 3-12, 17 figs., 1 pl.
- 1926, Nuevos Histeridos ecitófilos. — Rev. Mus. La Plata, vol. 29, pp. 17-33, 10 figs., 2 pls.
- 1929, Neue myrmecophile Histeriden und Verzeichnis der aus Argentinien bekannten Ameisengaeste. — Zool. Anz. vol. 82, pp. 421-437, 13 Fig.
- 1933, Coleópteros mirmecófilos de Misiones. — Rev. de Ent., Rio de Janeiro, vol. 3, pp. 12-37, 53 figs., 1 pl.
- Mann, W. M., 1925, Guests of Eciton hamatum (Fab.) collected by Professor W. M. Wheeler. — Psyche, vol. 32, pp. 166-177.
- Reichensperger, A., 1923, Neue suedamerikanische Histeriden als Gaeste von Wanderameisen und Termiten. I. Teil. — Mitt. Schweiz. Ent. Ges. vol. 13, pp. 313-336, 1 Tafel; Zs. wiss. Insektenbiol. vol. 18 (n. s.), pp. 243-252, 1 Taf.
- 1924, Neue suedamerikanische Histeriden als Gaeste von Wanderameisen und Termiten. II. Teil. — Rev. Suisse Zool. vol. 31, pp. 117-153, 1 Fig., 1 Taf.
- 1924, Zur Kenntnis myrmecophiler Histeriden. — Ent. Mitt. vol. 13, pp. 302-308, 2 Fig.
- 1926, Neue Beitrage zur Artenkenntnis und zur Lebensweise myrmecophiler Histeriden. — Verh. III. Int. Ent.-Kongr. Zuerich 1925, vol. 2 (1926), pp. 184-203, 5 Fig.
- 1929, Neue Ameisengaeste und ein neuer Termitengast (Pauss. Hist. Staph.). — Ent. Blaetter, vol. 25, pp. 132-137, 2 Fig.

- 1929, Systematische und oekologische Myrmekophilen-Beitraege. — Zool. Anz. vol. 82 (Wasmann-Festband), pp. 257-268, 5 Fig.
- 1930, Subgenera von Pausus und die Gattung Hylotorus, sowie Beitrage zur Kenntnis afrikanischer und suedamerikanischer Myrmekophilen. — Ent. Blaetter, vol. 26, pp. 71-85, 3 Fig., 1 Taf.
- 1931, Die Wirte der Mesynodites-Gruppe nebst Beschreibung neuer ecitophiler und termitophiler Histeridenarten. — Zool. Jahrb. Syst., vol. 61, pp. 263-284, 3 Fig., 1 Taf.
- 1932, Ecitophilen und Termitophilen aus Costa Rica (I), nebst Bemerkungen ueber Fuehlerbildung bei Mimeciton. — Rev. de Ent., Rio de Janeiro, vol. 2, pp. 6-14, 6 Fig.
- 1933, Neue ecitophile Histeriden aus Mittel- und Suedamerika. — Zool. Anz. vol. 101, pp. 299-309, 6 Fig.
- 1933, Ecitophilen aus Costa Rica (II), Brasilien und Peru. — Rev. de Ent., Rio de Janeiro, vol. 3, pp. 179-194, 31 Fig., 1 Taf.
- 1935, Beitrag zur Kenntnis der Myrmekophilenfauna Brasiliens und Costa Ricas. III. — Arb. morph. tax. Ent. vol. 2, pp. 188-218, 11 Fig., 1 Taf.
- 1935, Beitrag zur Kenntnis attaphiler Histeriden aus Brasilien. — Rev. de Ent., Rio de Janeiro, vol. 5, pp. 25-32, 5 Fig.
- 1936, Ergebnisse neuerer Forschungen an Ameisen- und Termitengaesten. — Arb. phys. angew. Ent., vol. 3, pp. 186-192, 5 Fig.
- 1938, Beitrage zur Kenntnis der Myrmecophilen- und Termitophilenfauna Brasiliens und Costa Ricas. V. — Rev. de Ent., Rio de Janeiro, vol. 9, pp. 74-97, 20 Fig., 1 Taf.
- — Beitrage zur Kenntnis der Myrmecophilen- und Termitophilenfauna Brasiliens und Costa Ricas. VI. — Rev. de Ent., Rio de Janeiro, vol. 10, pp. 97-137, 30 Fig.
- 1939, Beitrage zur Kenntnis der Myrmecophilenfauna Costa Ricas und Brasiliens (VII), nebst Beschreibung der Koenigin von Eciton (Acamatus) pilosum. — Zool. Jahrb. Syst. vol. 73, pp. 261-300, 33 Fig.
- Wenzel, R. L., 1944, On the classification of the Histerid beetles. — Zool. Series Field Mus. Nat. Hist. vol. 28, pp. 51-151, 12 Figs., 9 pls.

Estudos Sobre Tabânidas Brasileiros. V. Sobre o Gênero *Amphichlorops* Lutz, 1911, com as Descrições de Quatro Espécies Novas (Diptera, Tabanidae).

Por Mauro Pereira Barretto, Docente livre e Assistente do Departamento de Parasitologia da Faculdade de Medicina, Universidade de São Paulo. *

(Com 8 figuras)

A nímia gentileza dos Srs. Prof. John Lane, da Faculdade de Higiene e Saúde Pública de São Paulo, e Messias Carrera, do Departamento de Zoologia de São Paulo, devemos a possibilidade de examinar grande parte do material constante deste trabalho; a eles os nossos agradecimentos. Queremos também agradecer particularmente ao Dr. L. L. Pechuman o obsequiar-nos com um parátipo de sua espécie *Catachlorops d'almeidai*, e manifestar-lhe o nosso apreço pelo elevado espírito de colaboração, pondo-nos à disposição material de sua coleção particular.

Amphichlorops Lutz, 1911.

Amphichlorops Lutz, 1911, Int. Hyg.-Ausst. Dresden, p. 34; Lutz, 1913, Brazil Med., 27:478; Lutz, 1913, Mem. Inst. O. Cruz, 6:71; Lutz, 1922, Folha Med., 3:148; Bequaert, 1924, Psyche, 31:27; Kröber, 1931, Rev. Ent., 1:86 (como subgen. de *Gymnochela* End., 1924); Kröber, 1931, Rev. Ent., 1:286; Kröber, 1932, Rev. Ent., 2:200 (como subgen. de *Gymnochela* End., 1924); Borgmeier, 1933, Rev. Ent., 3:287; Kröber, 1934, Rev. Ent., 4:271; Martins, 1940, Tab. Est. M. Gerais, p. 32. — Genótipo: *Tabanus flavus* Wied., 1828, designado por Bequaert (1924). *Dichelocera* (pro parte) Enderlein, 1924, Mitt. Zool. Mus. Berlin, 11:383. *Catachlorops* (pro parte) Carrera e Lane, 1945, Arq. Mus. Paranaense, 4:130. *Rhamphidommia* Enderlein, 1922, Mitt. Zool. Mus. Berlin, 10:345; Enderlein, 1924, Mitt. Zool. Mus. Berlin, 11:381; Kröber, 1931, Rev. Ent., 1:287; Kröber, 1932, Rev. Ent., 2:198; Borgmeier, 1933, Rev. Ent., 3:300; Kröber, 1934, Rev. Ent., 4:262. — Tipo: *Rhamphidommia muscosa*, por designação original

O nome *Amphichlorops* apareceu pela primeira vez no folheto "Instituto Oswaldo Cruz, em Manguinhos, Rio de Janeiro, 1909, p. 29", mas não pode ser aceito nomenclaturalmente com esta data em virtude de sua anonimia. Passa a ter validade, em 1911, quando este folheto foi, com algumas modificações, traduzido para o alemão, sob o título: "Institut Oswaldo Cruz, Manguinhos, Rio de Janeiro (Brazil), Int. Hyg.-Ausst. Dresden", onde o referido nome apareceu acompanhado da indicação "n. gen. Lutz". Duas espécies foram mencionadas em conexão com o novo nome genérico: *Tabanus flavus* Wied., 1828 e *Amphichlorops variegatus*, n. sp. Lutz.

O gênero *Amphichlorops* foi caracterizado por Lutz (1913) em uma chave, republicada no ano seguinte (Lutz, 1914), na qual não há referência alguma a espécies. Em Lutz e Neiva

*) Trabalho realizado com auxílio financeiro da "Fundação José Pinto Alves".

(1914) encontra-se *Tabanus flavus* incluído neste gênero, e Bequaert (1924), louvando-se neste trabalho, designou a espécie em questão para genótipo de *Amphichlorops*.

Enderlein (1924) colocou o gênero *Amphichlorops* na sinonímia de *Dichelacera* Macq., 1838. Kröber (1931, 1932) considerou-o subgênero de *Gymnochela* End., 1924, enquanto que o próprio Kröber (1931a, 1934), Borgmeier (1933) e Martins (1940) tiveram-no por bom gênero.

Concordamos com a opinião destes últimos autores. Digamos também, com Martins (1940), que não julgamos *Rhabd tylus* Lutz, 1911 sinônimo de *Amphichlorops*.

Quanto a *Rhamphidommia*, criou-o Enderlein (1922), distinguindo-o dos outros gêneros neotrópicos afins pela presença de ocelos. Kröber (1931, 1932, 1934) e Borgmeier (1933) aceitaram-no como bom gênero.

Carrera e Lane (1945), verificando a presença de ocelos, ora rudimentares, ora mais ou menos desenvolvidos, em exemplares de *Catachlorops intereuns* Walk., 1856, e, identificando erradamente material de que dispunham, como a espécie tipo de *Rhamphidommia*, colocaram este gênero na sinonímia de *Catachlorops* Lutz, 1911. Esta identidade é também aceita como provável por Pechuman (1946).

Julgamos, porém, que as espécies incluídas em *Rhamphidommia* se distinguem das de *Catachlorops* principalmente pela coloração dos olhos, caráter de grande valor taxonômico como já assinalara Lutz em diversos trabalhos. De fato, as espécies de *Catachlorops* têm os olhos verde-escuros em cima e verde-claros em baixo, sendo a separação das duas cores geralmente muito nítida; ao passo que as de *Rhamphidommia* apresentam os olhos unicolores verde-claros ou escuros, às vezes com reflexos avermelhados. E' verdade que não conhecemos as espécies tipo de *Rhamphidommia*; o exemplar identificado como *muscosa* por Carrera e Lane (1945) e por nós examinado, pertence a uma espécie que descrevemos adiante como nova. Mas, em todas as outras espécies incluídas neste gênero, que tivemos em mãos, aquele caráter se apresenta constante.

Não há, no entanto, diferenças consistentes entre estas e *Tabanus flavus*, genótipo de *Amphichlorops*; apenas a cor dos olhos em *Rhamphidommia* é um pouco mais escura, mas este caráter, por si só, não tem valor genérico, porque entre o verde-escuro, observável em *Rhamphidommia nigra* Kröb., 1931, e o verde-claro dos olhos de *Tabanus flavus* Wied., 1828, há graus

intermediários. A presença de tubérculo ocelar bem desenvolvido também não é caráter de valor, de vez que algumas espécies de *Rhamphidommia* não o apresentam, existindo, por outro lado, em *Tabanus flavus* um tubérculo bem evidente, embora pequeno, com ocelos distintos. Enfim, a coloração do corpo e das asas, a pilosidade, a forma e comprimento do palpo, os caracteres da fronte, das antenas e da probóscida, etc., não permitem a distinção entre os dois gêneros, ou porque são comuns a ambos, ou porque variam.

Julgamos, assim, o gênero *Rhamphidommia* sinônimo de *Amphichlorops*.

O gênero *Amphichlorops* é constituído por espécies de tamanho médio ou grandes, de cor variável desde o amarelo até o preto e caracterizadas por apresentar: olhos unicolores, verde-claros ou escuros, às vezes com reflexos avermelhados, glabros ou com finíssima pubescência só visível com luz indireta sob forte poder ampliador; vértice não escavado; placa ocelar distinta, geralmente em forma de tubérculo e com ocelos bem visíveis; pós-fronte posterior estreita ou de largura média, com as bordas mais ou menos paralelas ou ligeiramente divergentes para baixo e com calo bem individualizado, afastado dos olhos; pós-fronte anterior normal, polinosa, clipeo polinoso; III segmento antenal com um ramo dorso-basal geralmente curvo e muito longo; labelas polinosas, no máximo com pequenas placas basais brilhantes; palpos longos, porém bem mais curtos que a probóscida, com o II segmento levemente incurvado na base e de largura média; basicosta nua; célula R_5 largamente aberta; pernas normais quanto à forma e ao revestimento piloso; abdomen robusto e convexo na face dorsal.

Amphichlorops satanica (Bigot, 1892) (Fig. 1)

Dichelacera satanica Bigot, 1892, Mém. Soc. Zool. France, 5:632. — Kertész, 1900, Cat. Tab., p. 35. — Surcouf, 1921, Gen. Ins., fasc. 175, p. 83.
Gymnochela satanica Kröber, 1931, Zool. Anz., 96:52, fig. 2.
Chelommia satanica Kröber, 1934, Rev. Ent., 4:271.
Dichelacera castanea Bigot, 1892, Mém. Soc. Zool. France, 5:633 (apud Kröber, 1934).

Tivemos a oportunidade de examinar abundante material procedente de diversas localidades do Sul do Brasil, e pudemos verificar que esta espécie não pertence ao gênero *Chelommia*, como afirmou Kröber (1934), porque, entre outros caracteres, possui a basicosta nua. Enquadra-se antes na definição de *Amphichlorops* que atrás demos.

Entre os exemplares examinados, encontramos dois machos, cuja descrição apresentamos a seguir.

Dimensões. — Comprimento da antena: 1,5-1,75 mm; comprimento do corpo: 15,0-16,8 mm; comprimento da asa: 13,4-13,6 mm; largura da asa: 4,3-4,4 mm.

Cabeça. — Olho constituído por uma área mais ou menos triangular de facetas muito grandes e de cor avermelhada, e uma orla superior e externa de facetas pequenas, orla esta que se alarga na metade inferior e tem cor verde-escura. Vértice muito reduzido, sendo visível apenas um pequenino tubérculo ocelar, onde os ocelos são pouco perceptíveis. Pós-fronte muito pequena, castanho-clara, revestida de pólen amarelo. Clípeo, gena e pós-gena castanho-claros, revestidos de pólen amarelo-acinzentado e pêlos castanho-escuros; apenas a parte inferior da gena e pós-gena com pêlos amarelos ou castanho-amarelados. Occipício castanho-escuro, com pólen cinzento e pêlos amarelados. Antena muito curta, castanho-escura, um pouco mais escura no ápice, com pêlos pretos; III segmento com um ramo dorso-basal delgado, curvo e afilado, cuja extremidade ultrapassa um pouco a articulação com o ceratóstilo. Probóscida castanho-escura, com pólen acinzentado; labelas polinosas, sem áreas brilhantes. Palpo castanho-escuro, com pêlos da mesma cor, exceto na base do I segmento, onde há pêlos amarelados.

Tórax. — Pronoto castanho-claro, com pêlos amarelo-avermelhados. Pré-escudo e escudo castanho-escuros, com as bordas laterais e posterior castanho-ferrugíneas; pólen acinzentado, relativamente abundante na parte anterior do pré-escudo e nas bordas laterais do escudo; revestimento piloso preto sobre as áreas escuras e alaranjado ou castanho-ferrugíneo sobre as áreas claras, existindo no calo supra-alar um tufo de pêlos amarelos e, no pós-alar, um tufo de pêlos esbranquiçados. Escutelo castanho-ferrugíneo, com pêlos da mesma cor. Notopleura castanho-escura, com pêlos alaranjados e castanho-ferrugíneos. Pleuras castanho-escuras, com pólen acinzentado e pêlos castanhos ou pretos.

Asa. — Castanho-acinzentada clara, com ápice apenas infuscado e áreas mais claras no centro de quase todas as células. Nervuras castanho-escuras. R_4 sem apêndice. Estigma castanho-escuro nítido. Calípteros apenas infuscados, com franja castanha e um tufo de pêlos brancos na base.

Balancim. — Castanho-claro, com ápice amarelado.

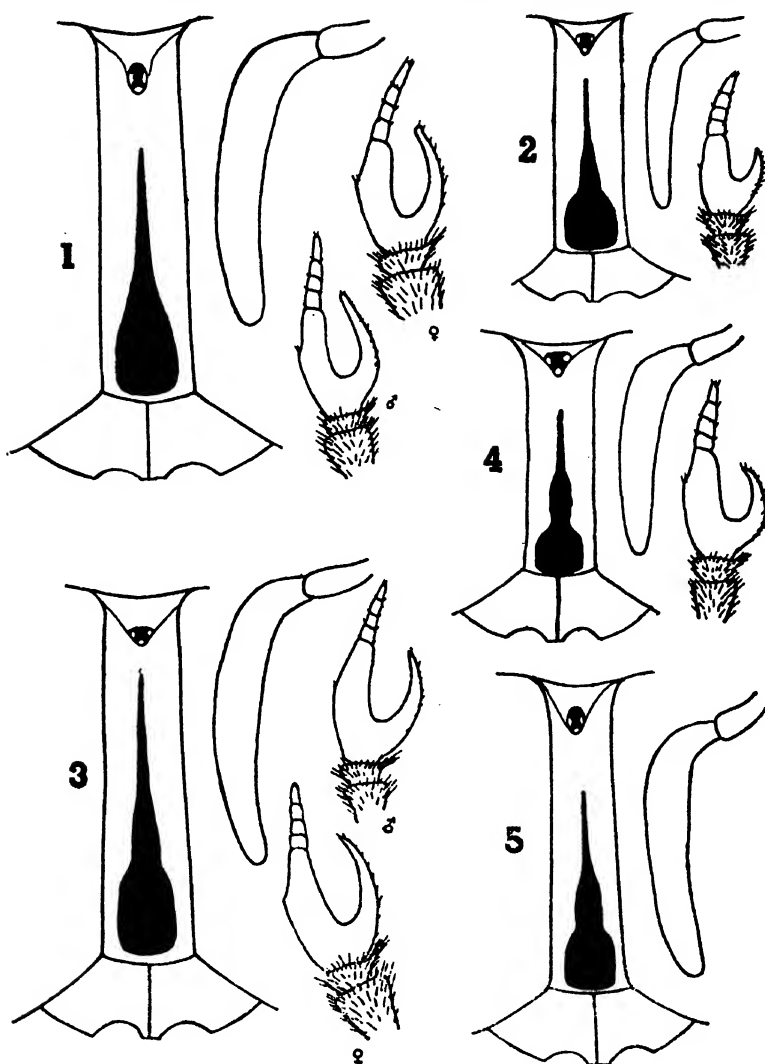


Fig. 1. *Amphichlorops satanica* Big. — Fig. 2. *Amphichlorops pechumani*, n. sp. —
 Fig. 3. *Amphichlorops ferruginea*, n. sp. — Fig. 4. *Amphichlorops phaeoptera*, n. sp.
 Fig. 5. *Amphichlorops fuscivittata*, n. sp.

Pernas. — Uniformemente castanho-escuras, com pêlos pretos.

Abdomen. — Robusto e abaulado, embora um pouco menos que na fêmea. Tergitos castanho-ferrugíneos, o I com uma área escura no meio, o II com uma faixa castanho-escura estreita mediana; revestimento piloso castanho-escuro ou preto, exceto no meio da borda posterior do IV tergito, onde há um triângulo de pêlos brancos. Esternitos castanho-escuros, revestidos inteiramente de pêlos pretos.

Terminália. — Nono e décimo tergitos formando uma placa bem esclerotizada de cada lado, separadas por uma área membranosa triangular; estas placas são largas posteriormente, onde se tocam na linha mediana, estreitando-se para frente e dirigindo-se para os lados; são revestidas de pêlos longos e esparsos, mais numerosos na parte posterior. Cerci subquadrangulares, com os ângulos arredondados, densamente revestidos de pêlos longos. Nono esternito fundido com os basistilos, sendo a parte livre destes tão longa quanto a parte fundida; um tufo de cerdas longas e numerosas é visto na parte interno-ventral da extremidade distal dos basistilos; dististilo grosso, mais grosso na base, ligeiramente curvo e profundamente chanfrado no ápice. Hipoprocto muito alongado, pouco esclerotizado, com séries laterais de pêlos longos que vem até quase a base.

Tipos. — Alótipo ♂ procedente de Maromba, Itatiaia, Est. do Rio de Janeiro (Barretto col. II-45), na coleção do Departamento de Parasitologia da Faculdade de Medicina da Universidade de São Paulo. Alo-parátipo ♂ de Fazenda Campos (a 1.600 ms), Passa Quatro, Est. de Minas Gerais (Zikán col., 21-II-20), na coleção particular do Sr. José Zikán.

Material Estudado. — Além dos tipos referidos, examinamos mais o seguinte material: Est. de S. Paulo: 4 ♀♀ de Juquiá, Prainha (Lane col., X-39); 1 ♀ de Casa Grande, Salesópolis (Barretto e Galvão col., IX-40); 14 ♀♀ de Casa Grande, Salesópolis (Galvão e Barretto col., XII-40); 2 ♀♀ de Chapadão, Cantareira (Barretto col., XI-46). Est. do Rio de Janeiro: 2 ♀♀ de Macieiras, Itatiaia (Zikán col., II-24 e I-26); 14 ♀♀ de Itatiaia, a 700 ms de altitude (Zikán col., I-26; I-31; III-35; XII-35; I-36); 1 ♀ da Faz. da Serra (1.100 ms), Itatiaia (Barretto col., II-45); 3 ♀♀ de Maromba, Itatiaia (Barretto col., II-45); 36 ♀♀ de Macieiras (a 1.800 ms), Itatiaia (Andretta e Martins col., I-48). Est. de Minas Gerais: 2 ♀♀ de Faz. Campos, Passa Quatro (Zikán col., II-20 e III-20).

Amphichlorops nigra (Kröb., 1931)

Rhamphidommla nigra Kröber, 1931, Rev. Ent., 1:290; Kröber, 1934, Rev. Ent., 4:262.

Examinamos uma fêmea desta espécie, cujos caracteres concordam muito bem com os que Kröber (1931) dá na diagnose original. Não trazendo o material, com que este autor trabalhou, indicação da localidade onde foi capturado, aproveitamos o ensejo para apresentar um dado positivo a respeito.

Material estudado. — Uma ♀ capturada em Florianópolis, Est. de Santa Catarina (S.N.M. col., I-44).

Amphichlorops borgmeieri (Lane, 1936)

Catichlorops borgmeieri Lane, 1936, Folia Clin. Biol., 8:70.

Examinamos o holótipo e os dois parátipos desta espécie e verificamos tratar-se de uma boa espécie de *Amphichlorops*.

Material estudado. — Holótipo ♀ procedente de Ponce, Chapada, Est. de Mato Grosso (Lane col., VII-IX-1934), atualmente na coleção do Departamento de Higiene Rural e Parasitologia da Faculdade de Higiene e Saúde Pública da Universidade de São Paulo; 2 parátipos ♀ ♀, da mesma procedência e colecionados na mesma ocasião, atualmente depositados, um na coleção do Departamento de Zoologia de São Paulo e outro na coleção particular do Prof. John Lane.

Amphichlorops d'almeidai (Pech., 1946)

Catichlorops d'almeidai Pechumann, 1946, Livro de Homenagem a R. F. d'Almeida, art. nº 32, p. 283, figs. 1-2.

Pechuman (1946) assinalou a posição anômala ocupada por esta espécie e as suas relações com o gênero *Rhamphidommia*.

Pudemos examinar dois parátipos, além de vários exemplares de diversas procedências, e chegamos à conclusão de que se trata de uma boa espécie do gênero *Amphichlorops*.

Material estudado. — 3 parátipos procedentes de Tinguá, Est. do Rio de Janeiro (Dez., 1940), atualmente nas coleções do Departamento de Parasitologia da Faculdade de Medicina da Universidade de S. Paulo e Departamento de Zoologia de São Paulo; 1 ♀ de Angra dos Reis, Est. do Rio de Janeiro (Travassos col., Dez., 1932); 1 ♀ de Tinguá, Est. do Rio de Janeiro (Nov., 1940); 7 ♀ ♀ da mesma localidade, sem data de captura.

Amphichlorops pechumani, n. sp. (♀)

(Figs. 2 e 6)

Dimensões. — Comprimento da antena: 1,40-1,52 mm; comprimento do corpo: 10,5-12,0 mm; comprimento da asa: 10,4-12,0 mm; largura da asa: 3,6-3,7 mm.

Cabeça. — Olho verde-escuro, com pubescência branca muito fina e esparsa. Vértice ligeiramente deprimido, castanho-

escuro ou preto, brilhante na parte média e com pólen cinzento-amarelado nas partes laterais; pêlos pretos. Placa ocelar ovóide, bem saliente, preta, lisa e com pêlos pretos; ocelos grandes, muito nítidos e de cor amarelada. Pós-fronte posterior castanho-escuro ou preta, com pólen cinzento-prateado ou cinzento-amarelado e com pêlos castanho-claros esparsos; calo frontal subquadrangular pequeno, mais alto que largo, bem afastado das bordas oculares, castanho-claro ou escuro, levemente rugoso e brilhante; lista mais ou menos saliente e da mesma cor, que se estende até às proximidades da placa ocelar. Pós-fronte anterior castanho-clara ou escura, com pólen cinzento-prateado, que se torna amarelado nas proximidades das antenas. Clípeo, gena e pós-gena castanho-claros ou escuros, com pólen cinzento-prateado ou cinzento-amarelado e pêlos brancos. Occipício castanho-escuro ou preto, com pólen cinzento-prateado e pêlos brancos, exceto ao longo da borda ocular, onde os pêlos são pretos. Antena castanho-clara ou escura, os dois primeiros segmentos sempre mais claros que os restantes, mas todos com pólen cinzento-amarelado e pêlos castanhos ou pretos; II segmento grosso, mais largo que longo e com um esporão dorsal; III grosso, mais largo na base e com um ramo dorso-basal curvo, afilado na extremidade que não atinge a articulação com o ceratóstilo. Probóscida castanha, polinosa e com pêlos castanhos; labelas polinosas, apenas com pequenas placas brilhantes. Palpo castanho-amarelado, com pólen amarelo; I segmento com pêlos brancos; II com pêlos pretos na face externa e amarelados na interna.

Tórax. — Pronoto castanho-amarelado, com pólen cinzento e pêlos esbranquiçados. Pré-escudo e escudo castanho-escuro, com uma faixa para-mediana castanho-clara, faixa esta que se alarga posteriormente para se unir à do lado oposto; bordas laterais do pré-escudo e escudo também castanho-claras. As áreas escuras tem pólen castanho esparsos e pêlos castanhos ou pretos, e as áreas claras pólen cinzento e revestimento piloso branco-prateado. Escutelo castanho, mais claro no ápice que na base, com pólen e pêlos castanhos na base e pólen amarelado e pêlos brancos no ápice e nas bordas laterais. Pós-noto castanho, brilhante e glabro. Notopleura castanho-clara, com pólen cinzento e pêlos brancos na parte superior e castanhos ou pretos na inferior. Pleuras castanhas, mais claras na parte superior, com pólen cinzento-prateado e pêlos brancos.

Asa. — Hialina ou apenas levemente amarelada, com uma mancha castanha irregular na metade distal, mancha esta que

ocupa o ápice das células *C* e *Sc*; o meio da *R*₁, a metade basal da *R*₂ e *R*₅, a maior parte da 1ª *M*₂ e a base da *M*₃ e *M*₄, invadindo também o ápice da *R* e *M*. As células *C* e *Cu* são castanho-amareladas claras. Nervuras castanho-claras. Estigma castanho-escuro, nítido. Calípteros hialinos, com a borda castanho-amarelada e franja amarela.

Balancim. — Castanho mais claro na base que no ápice.

Pernas. — Coxas castanhas, com pólen esbranquiçado e pêlos brancos. Fêmures castanhos, com pêlos castanho-escuros e



Fig. 6. *Amphichlorops pechumani*, n. sp.

pretos, o médio e o posterior com pêlos brancos na face pósterointerna. Tíbia anterior com a metade basal amarela e revestida de pêlos brancos e a metade distal castanha, com pêlos da mesma cor ou pretos; média e posterior com os três-quartos basais amarelados e revestidos de pêlos brancos, quarto distal castanho-claro, com pêlos pretos. Tarsos castanhos com pêlos pretos.

Abdomen. — Tergitos castanho-escuros; II-IV com a borda posterior e um triângulo mediano posterior mais claros. I tergito com um grupo de pêlos brancos no meio da borda posterior e ao lado do escutelo; II-IV com mancha triangular de pêlos brancos no meio da borda posterior, V e VI apenas com alguns pêlos brancos no meio desta borda; bordas laterais e ângulos pósterolaterais de todos os tergitos com pêlos brancos; resto do revestimento piloso castanho-escuro ou preto. Esternitos castanho-escuros com pólen cinzento; II-IV com a borda posterior mais clara. Revestimento piloso branco, mais abundante ao longo da linha mediana e nas bordas posteriores, onde forma uma franja; dois últimos esternitos com pêlos castanhos misturados aos brancos.

Localidade Típica. — Faz. Serra (a 1.100 ms), Itatiaia, Est. do Rio de Janeiro (Barretto col., II-45).

Localidades Adicionais. — Macieiras, (a 1960 ms), Itatiaia, Est. do Rio de Janeiro (Zikán col., 8-XII-30; 5-II-

31); Parque Nacional (a 700 ms), Itatiaia, Est. do Rio de Janeiro (Zikán col., 5-II-29); Macieiras (a 1800 ms), Itatiaia, Est. do Rio de Janeiro (Andretta col., I-48).

Tipos. — Holótipo ♀ e 8 parátipos ♀♀ na coleção do Departamento de Parasitologia da Faculdade de Medicina da Universidade de S. Paulo; 2 parátipos ♀♀ na coleção particular do Sr. José Zikán.

Amphichlorops ferruginea, n. sp. (♀ ♂)

(Fig. 3)

Fêmea. — Comprimento da antena: 1,7-1,8 mm; comprimento do corpo: 16,8-17,6 mm; comprimento da asa: 14,4-15,2 mm; largura da asa: 4,8-5,0 mm.

Cabeça. — Olho unicolor, verde-escuro, e sem pubescência. Vértice ligeiramente deprimido, castanho-escuro e com pólen cinzento-amarelado. Placa ocelar pouco saliente, castanha e com pólen cinzento-amarelado; ocelos pequenos, pouco perceptíveis. Pós-fronte posterior estreita, castanho-escuro, com pólen cinzento-ocráceo ou cinzento-escuro e com pêlos dourados. Calo frontal pequeno, muito afastado das bordas oculares, subquadrangular, bem mais alto que largo, rugoso e castanho-avermelhado; lista com os mesmos caracteres, sua extremidade quase atingindo a placa ocelar. Pós-fronte anterior castanho-clara, com pólen amarelado ou dourado, glabra. Clipeo, gena e pós-gena castanho-claros, com pólen cinzento-amarelado ou dourado e pêlos dourados, havendo, na pós-gena, pêlos castanhos mais ou menos abundantes, conforme o exemplar. Occipício castanho-escuro, com pólen acinzentado e pêlos castanho-avermelhados ou dourados. Antena castanho-clara, sendo o ceratóstilo um pouco mais escuro, com pólen amarelado ou dourado e pêlos castanhos; II segmento com um esporão dorso-terminal longo; III com ramo dorso-basal delgado, curvo e longo, cuja extremidade ultrapassa a articulação distal. Probóscida castanho-escuro, com pólen ocráceo e pêlos amarelos ou castanhos; labelas polinosas, exceto em pequena área lateral. Palpo castanho-claro, com pólen cinzento-ocráceo ou amarelo e pêlos dourados ou castanho-amarelados.

Tórax. — Inteiramente castanho-ferrugíneo, um pouco mais claro no pronoto, ao longo da linha dorsal para-mediana, nas bordas laterais do pré-escudo e escudo e na notopleura. Todo o tórax tem pólen cinzento, que é mais abundante no pronoto, na parte anterior do pré-escudo, sobre as áreas claras menciona-

das e nas pleuras. Revestimento piloso castanho-dourado, mais escuro nas pleuras; alguns exemplares têm as pleuras revestidas de pêlos castanhos.

A s a. — Coloração geral amarelada, sendo hialina uma área situada no meio da célula *Sc* e base da *R*₁; ápice, célula *An* e álula um pouco mais claros que o resto da asa. Nervuras castanho-amareladas, com estreita orla um pouco mais escura que o resto da membrana alar. Estigma castanho-amarelado, pouco evidente. Calíptero distal hialino e proximal castanho-amarelado, ambos com a borda mais escura e com franja dourada ou castanho-amarelada.

P e r n a s. — Castanhas, com pêlos da mesma cor; coxas com abundante pólen acinzentado, em alguns exemplares com pêlos dourados misturados com os castanhos; tíbias anterior e média mais claras na metade basal e com pêlos dourados em quase toda a sua extensão, principalmente na face interna.

A b d o m e n. — Castanho-ferrugíneo, com a borda posterior dos tergitos e esternitos mais clara. Revestimento piloso dourado ou castanho-dourado.

M a c h o. — Comprimento da antena: 1,6 mm; comprimento do corpo: 17,5 mm; comprimento da asa: 15,6 mm; largura da asa: 5,9 mm.

C a r a c t e r e s. — Assemelha-se à fêmea, tendo, porém, o tegumento mais claro e o revestimento piloso inteiramente dourado.

T e r m i n á l i a. — Assemelha-se a de *R. satanica*, diferindo, porém, porque apresenta um nítido estrangulamento lateral no ponto de fusão do nono esternito com os basistilos; a porção livre destes é bem menor que a resultante da fusão; os cerci são mais largos e a pilosidade de toda a terminália é mais delicada.

L o c a l i d a d e T í p i c a. — Alto da Serra, Est. de S. Paulo (Spitz col., II-37).

L o c a l i d a d e A d i c i o n a l. — Serra da Cantareira, S. Paulo, Est. de S. Paulo (Woronizow col., II-37).

T i p o s. — Halótipo ♀, halótipo ♂ e 2 parátipos ♀♀ na coleção do Departamento de Parasitologia da Faculdade de Medicina da Univ. de S. Paulo.

Amphichlorops phaeoptera, n. sp. (♀)

(Figs. 4 e 7)

Dimensões. — Comprimento da antena: 1,92 mm; comprimento do corpo: 11,9 mm; comprimento da asa: 11,2 mm; largura da asa: 3,9 mm.

Cabeça. — Olho unicolor, verde-escuro, com pubescência muito fina e esparsa. Vértice ligeiramente deprimido, preto, com pólen cinzento-ocráceo e pêlos castanho-escuros. Placa ocelar oval, saliente, rugosa e preta, com ocelos grandes e muito nítidos. Pós-fronte posterior de bordas mais ou menos paralelas, largura média, castanho-escura, com pólen castanho-ferrugíneo que se torna ocráceo junto aos olhos; pêlos castanhos esparsos. Calo frontal oval, pequeno, afastado das bordas oculares, rugoso na parte inferior, brilhante; lista com os mesmos caracteres, indo além do meio da pós-fronte e apresentando um sulco mediano longitudinal. Pós-fronte anterior castanho-clara, com pólen amarelo-dourado, glabra. Clípeo, gena e pós-gena castanhos, com pólen amarelo-dourado e pêlos branco-amarelados, a gena e as partes laterais do clípeo com pêlos castanhos de permeio. Occipício castanho-escuro, com pólen amarelo e pêlos amarelos e dourados, exceto na borda ocular, onde os pêlos são castanhos. Antena com I e II segmentos castanho-claros com pólen amarelado e pêlos pretos; III com a base castanho-clara e o ápice castanho-escuro e com ramo dorso-basal curvo e afilado na extremidade, que não atinge a articulação distal; ceratóstilo castanho-escuro com pólen cinzento escasso e pêlos pretos esparsos. Probóscida castanho-escura, com pólen acinzentado e pêlos castanhos; labelas polinosas, com pequeníssimas placas laterais brilhantes. Palpo castanho-claro, exceto na base o I segmento, onde os pêlos são branco-amarelados.

Tórax. — Pronoto castanho-claro, com pólen cinzento-amarelado e pêlos esbranquiçados. Pré-escudo, escudo e escutelo castanho-escuros, com pólen acinzentado, mais abundante na parte anterior do pré-escudo. Revestimento constituído de pêlos branco-amarelados reclinados e pêlos castanhos erectos menos abundantes. Notopleura castanho-clara, com pólen amarelo-ocráceo e pêlos castanhos, havendo, na parte superior, pêlos amarelados de permeio. Pleuras castanho-escuras, com abundante pólen amarelo-acinzentado, e revestidas de pêlos branco-amarelados, exceto sobre o mesanepisterno, onde os pêlos são castanhos.

A s a. — Castanho-clara com uma grande mancha basal apenas infuscada, mancha esta que ocupa o meio da célula *Sc*, a base da *R*₁, o espaço intervenal, as células *R* e *M* e a maior parte da célula *Cu*. São também um pouco mais claros: o ápice (entre *R*₄ e *R*₅) e o centro de quase todas as células, inclusive a 1ª *M*₂. Nervuras castanho-escuras. Estigma castanho-escuro, muito nítido. Calípteros castanho-claros, com um tufo de pêlos branco-amarelados.



Fig. 7. *Amphichlorops phaeoptera*, n. sp.

B a l a n c i m. — Castanho, com haste e a extremidade do capitelo amareladas.

P e r n a s. — Castanho-escuras, com o terço distal do fêmur médio, a extremidade distal do posterior e a maior parte das tíbias castanho-claros. Coxas e fêmures quase totalmente revestidos de pêlos branco-amarelados; tíbias com alguns pêlos amarelados; resto do revestimento piloso castanho-escuro ou preto.

A b d o m e n. — I tergito inteiramente castanho-escuro, II-IV castanho-ferrugíneos, com uma mancha mediana quase preta, mancha esta que quase atinge a borda posterior; V-VII castanho-escuros com as bordas posterior e laterais mais claras. Revestimento piloso castanho, havendo um triângulo de pêlos branco-amarelados na borda posterior dos I-IV tergitos e pêlos da mesma cor nos ângulos póstero-laterais dos mesmos tergitos; tergitos V-VIII com abundantes pêlos esbranquiçados misturados irregularmente aos castanhos, mas formando uma pequena mancha no meio da borda posterior e uma franja nesta borda. Esternitos castanho-escuros, com a borda posterior mais clara; revestimento piloso castanho e branco-amarelado, os pêlos desta cor sendo mais abundantes na linha mediana, onde formam uma faixa larga mais ou menos contínua.

Localidade Típica. — Pico Olímpio, Est. Paraná (Hatschbach col., II-1946).

Tipo. — Holótipo ♀ na coleção do Departamento de Zoologia de São Paulo.

Amphichlorops fuscivittata, n. sp. (♀)

(Figs. 5 e 8)

Catachlorops muscosa Carrera e Lane, 1945, Arq. Mus. Paranaense, 4:130 (nec Enderlein, 1924).

Dimensões. — Comprimento da antena: ?; comprimento do corpo: 15,6 mm; comprimento da asa 13,2 mm; largura da asa: 4,5 mm.

Cabeça. — Olho verde-escuro, glabro. Vértice muito ligeiramente deprimido, preto, com pólen cinzento-escuro. Placa ocelar oval, pequena e pouco saliente mas bem delimitada, preta, brilhante e lisa; ocelos pequenos, mas nítidos. Pós-fronte posterior de largura média, com as bordas paralelas, castanho-escuro, com pólen cinzento-ocráceo e pêlos amarelados. Calo frontal em forma de gota, pequeno, muito afastado das bordas oculares, bem mais alto que largo, rugoso, castanho e brilhante; rugosa, castanha, brilhante, larga e irregular inferiormente e muito afilada superiormente, sua extremidade quase atingindo a placa ocelar. Pós-fronte anterior castanho-avermelhada, com pólen amarelado, glabra. Clípeo, gena e pós-gena castanho-escuros, com pólen cinzento-amarelado, os dois primeiros com pêlos amarelados e a pós-gena com pêlos castanhos. Occipício castanho-escuro, com pólen cinzento-escuro e pêlos castanhos. Antena com o I e II segmentos castanho-amarelados, recobertos de pólen amarelado e pêlos castanho-escuros; III e ceratóstilo faltam. Probóscida castanho-escuro, com pólen cinzento e pêlos castanho-escuros; labelas polinosas, com apenas pequenas áreas laterais brilhantes. Palpo castanho-amarelado, com pêlos castanho-escuros e pretos.

Tórax. — Pronoto castanho-amarelado, com pêlos da mesma cor. Pré-escudo, escudo, escutelo e notopleura castanho-ferrugíneos, mais claros nas bordas laterais e com uma faixa mais escura para-mediana, larga, irregular e incompleta; pólen acinzentado, mais abundante no pré-escudo e nas bordas laterais do escudo; revestimento piloso castanho-avermelhado-claro. Pleuras castanhas, com pólen acinzentado e pêlos castanho-escuros.

Asa. — Castanho-claro, sendo o centro de quase todas as células apenas infuscado, donde resulta parecer a asa listada

longitudinalmente, quando o exemplar é observado a olho nu. Nervuras castanho-escuras. Estigma castanho-escuro, nítido. Calípteros castanho-claros, com franja mais escura e um tufo de pêlos dourados na borda.

Balancim. — Castanho-claro, com o ápice do capitulo amarelado.

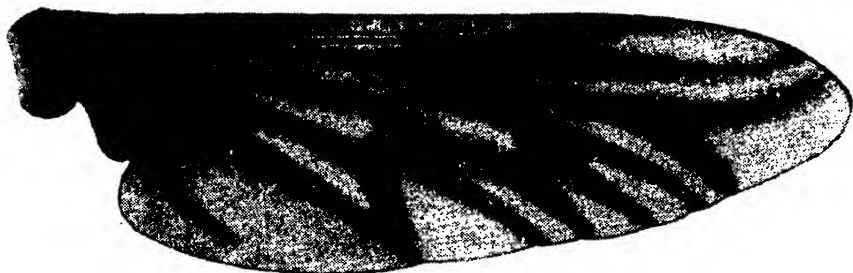


Fig. 8. *Amphichlorops fuscivittata*, n. sp.

Pernas. — Castanho-escuras, revestidas de pêlos da mesma cor, a metade basal da face externa da tibia anterior parecendo mais clara em virtude da presença de pêlos amarelados.

Abdomen. — Tergitos castanho-ferrugíneos, com a borda posterior mais clara. Revestimento piloso castanho-ferrugíneo ou amarelado, na borda posterior dos tergitos formando uma franja mais clara. Esternitos castanhos, com pêlos da mesma cor.

Localidade Típica. — Caiobá, Est. do Paraná (XII-42).

Tipo. — Holótipo ♀ na coleção do Departamento de Zoologia de São Paulo.

Chave para as fêmeas.

1. Asa preta ou castanho-negra, com o ápice hialino ou apenas infuscado, sempre porém em nítido contraste com o resto..... 2
- Asa manchada ou mais ou menos uniformemente castanho-amarelada 3
2. Pleuras inteiramente revestidas de pêlos pretos. Pernas inteiramente pretas *nigra* Kröb.
- Pleuras com escassos pêlos pretos e grandes tufo de pêlos brancos. Tibia anterior com os dois terços basais da face externa esbranquiçados e revestidos de pêlos brancos..... *d'almeidai* Pech.
3. Asa hialina, tendo na metade distal uma grande mancha castanha compacta e de contornos mais ou menos regulares, mancha esta que respeita a borda posterior..... *borgmeieri* Lane
- Asa com outra coloração 4

4. Abdomen com os tergitos II-IV castanho-ferrugíneos, tendo uma faixa castanho-negra mediana *phaeoptera*, n. sp.
- Abdomen sem faixa castanho-negra nos tergitos II-IV 5
5. Abdomen com manchas de pêlos brancos ou dourados, triangulares ou não, situados nos tergitos II-VI e formando uma faixa mediana mais ou menos nítida 6
- Abdomen sem faixa mediana de manchas de pêlos brancos ou dourados; no máximo com mancha de pêlos brancos no IV tergito . . 7
6. Asa hialina ou levemente infuscada, com mancha castanha irregular e de contornos pouco nítidos na metade distal, mancha esta que ocupa o ápice das células *C*, *Sc*, o meio da *R*₁, a metade basal de *R*₂ e *R*₅, a maior parte da 1ª *M*₂, e a base da *M*₃ e *M*₄, invadindo também o ápice da *R* e *M*. Tergitos abdominais com manchas medianas e pêlos brancos *pechumani*, n. sp.
- Asa sem mancha castanha na metade distal. Tergitos abdominais com manchas medianas de pêlos dourados 7
7. Asa amarela, com o ápice e a borda posterior acinzentados ou infuscados. Dorso do tórax com pólen e pêlos dourados . . *flava* Wied.
- Asa castanho-clara, com a borda anterior amarelo-escura e com as células *R*, *M*, *An*, 1ª *M*₂, base da *R*₂, e a maior parte da *R*₄ hialinas ou apenas amareladas. Dorso do tórax com pólen e pêlos esbranquiçados *elongata* Macq.
8. Dorso do tórax preto ou castanho-negro, com as bordas laterais e o escutelo avermelhados e revestidos de pêlos dourados até castanho-avermelhados *satanica* Big.
- Dorso do tórax e abdomen inteiramente castanhos ou ferrugíneos . . 9
9. Asa amarelada ou castanho-clara, o centro de maior ou menor número de células podendo ser um pouco mais claro . . *ferruginea*, n. sp.
- Asa levemente infuscada ou amarelada, com nervuras nitidamente orladas de castanho-escuro, donde o aspecto listado longitudinalmente 10
10. Nervuras transversais e bifurcação de *R*₄₋₅ situadas em áreas nitidamente claras. Calo frontal muito mais alto que largo; lista prolongando-se até quase a placa ocelar *muscosa* End.
- Nervuras transversas e bifurcação de *R*₄₋₅ orladas de castanho-escuro. Calo frontal quase tão alto quanto largo; lista curta, não atingindo o meio da pós-fronte posterior *fuscivittata*, n. sp.

Summary

The author considers *Rhamphidommia* End., 1922, as a synonym of *Amphichlorops* Lutz, 1911, and transfers to this genus the following species; *Dichelacera satanica* Big., 1892, *Catachlorops borgmeieri* Lane, 1936, and *Catachlorops d'almeidai* Pech., 1946.

The male of *Amphichlorops satanica* (Big., 1892) and four new species, i. e. *A. pechumani* (♀), *A. ferruginea* (♀ ♂), *A. phaeoptera* (♀), and *A. fuscivittata* (♀) are described. A key for the females of *Amphichlorops* is also presented.

Bibliografia

- ANÔNIMO, Coleção de tabânidas. Instituto Oswaldo Cruz em Mangueiras, Rio de Janeiro, 1909, pp. 28-30.
- ANÔNIMO, (Lista de tabânidas). Institut Oswaldo Cruz, Mangueiras, Rio de Janeiro (Brazil). — Int. Hyg.-Ausst. Dresden 1911, pp. 33-35.

- Bequaert, J., 1924, Notes upon Surcouf's treatment of the Tabanidae in the Genera Insectorum and upon Enderlein's proposed new classification of this family. — *Psyche*, 31:24-40.
- Bigot, J. M. F., 1892, Descriptions de diptères nouveaux. — *Mém. Soc. Zool. France*, 5:602-691.
- Borgmeier, T., 1933, A propósito da nomenclatura dos Tabanidae da região neotrópica. — *Rev. Ent.*, 3:286-303.
- Carrera, M. e Lane, J., 1945, Diptera de Caiobá (Est. do Paraná) (Diptera, Stratiomyidae e Tabanidae). — *Arq. Mus. Paranaense*, 4: 127-136.
- Enderlein, G., 1922, Ein neues Tabanidensystem. — *Mitt. Zool. Mus. Berlin*, 10:333-351.
- 1924, Grundlagen eines neuen Systems der Tabaniden. — *Mitt. Zool. Mus. Berlin*, 11:255-409.
- Kröber, O., 1931, Das Genus *Esenbeckia* Rondani und die *Gymnochela*-Untergattung *Amphichlorops* Lutz (Dipt. Tabanidae). — *Rev. Ent.*, 1:52-93.
- 1931, Die *Tabanus*-Untergattung *Gymnochela* End. (Diptera, Tabanidae). — *Zool. Anz.* 96:49-61.
- 1931, Die kleinen Gattungen der *Dichelacerinae* End. aus der südamerikanischen Region (Tabanidae). — *Rev. Ent.*, 1:282-298.
- 1932, Bemerkungen über die Systematik der neotropischen Tabaniden, nebst Bestimmungstabelle der Subfamilien und Gattungen. — *Rev. Ent.*, 2:185-202.
- 1934, Catálogo dos Tabanidae da América do Sul e Central incluindo o México e as Antilhas. — *Rev. Ent.*, 4:222-276, 291-333.
- Lane, J., 1936, Notas sobre tabanídeos. — *Folia Clin. & Biol.*, 8:70-71.
- Lutz, A., 1913, Sobre a sistemática dos tabanídeos, sub-família *Tabaninae*. — *Brasil Méd.*, 27 (45): 486-487.
- 1914, Sobre a sistemática dos tabanídeos, sub-família *Tabaninae*. — *Mem. Inst. O. Cruz*, 6:163-168.
- 1922, Zoologia médica. Tabanidae ou motucas. — *Folha Méd.*, 3: 146-148.
- Martins, A. V., 1940, Os tabanídeos do Estado de Minas Gerais, Belo Horizonte.
- Pechuman, L. L., 1946, A new *Catachlorops* from Brazil (Diptera, Tabanidae). — *Livro de Homenagem a R. F. d'Almeida*, S. Paulo, pp. 283-284.
- Surcouf, J. M. R., 1921, Fam. Tabanidae. — *Gen. Ins.*, fasc. 175, pp. 1-182.

***Phanaeus menelas* (Cast., 1840) not *Phanaeus splendidulus* (F., 1781). (Coleoptera: Scarabaeidae: Coprinae).**

By R. G. Webster Kay, Montevideo, Uruguay.

Some time ago my attention was called by the following statement on page 55 of *The Fabrician Types of Insects in the Hunterian Collection at Glasgow University*, Coleoptera, Part I. 1931 by Robert A. Staig:

"The modern examples of *splendidulus* in the British Museum are not like the Fabricius type and are therefore not that species; the modern species which agrees with the type is *Phanaeus floriger* Kirby, of Southern Brazil, the male of which has the horn of the head *truncate* at tip, not pointed, and the pronotal elevations *produced into horn-like processes*. *Phanaeus floriger* will now have to take the name of *splendidulus*; and, consequently, the species commonly known as *splendidulus* is meanwhile without a name".

Being unable to decide this matter by myself, I consulted the well-known specialist of the British Museum (N. H.), Mr. G. J. Arrow, who kindly replied to my inquiry as follows:

"The *Phanaeus splendidulus* described and figured under that name by Olivier but not that of Fabricius, is given in the 1911 Catalogue of Coleoptera a second name, *menelas* Castelnau, which must now be adopted. I have verified its correctness. It is strange that Staig did not consult the catalogue before making his statement".

The foregoing is submitted with the desire of pointing out this change of name, to which no attention has been given.

Report upon Specimens of *Diatraea* Guild. in the Paris Museum, with the Description of a New Species from Brazil (Lep., Pyral.)

By HAROLD E. BOX, Maracay, Venezuela.

(With 2 figures)

The writer is greatly obliged to Monsieur J. Bourgogne, of the Museum National d'Histoire Naturelle, Paris, for kindly sending on loan a number of *Diatraea* moths for examination. This historical collection, comprising forty specimens, has proved so interesting that it is considered desirable to publish the present notes upon it. Nine species are represented, two of which appear to be new to science. One of the latter is most unfortunately represented by a unique specimen which has the abdomen missing, and it is considered inadvisable to describe it until further material is forthcoming. The other new species, represented by two males and a female, from Brazil, is here described.

M. Bourgogne sent the specimens by air-express while the writer was working at the British Museum (Natural History) in London, a few days before his return to Venezuela, and Mr. W. H. T. Tams very kindly came to his aid and made dissections of the genitalia of all those specimens — seven in number — concerning the identity of which there was any element of doubt. This material was brought by the writer to his headquarters at Maracay, Venezuela, where it has been given critical examination, and before this paper appears in print it will have been returned to the Paris Museum. The drawings of the genitalia of the new species were made under the writer's direction by his colleague, Signor Pietro Guagliumi.

Messrs. Bourgogne, Tams and Guagliumi are asked to accept the writer's most sincere thanks for their collaboration, which has made the present report possible.

Lepidoptera: Heterocera
Fam. Pyralidae
Subfam. Crambinae

Diatraea Guild.

Diatraea Guiling 1828, Trans. Soc. Encour. Arts etc., XLVI, p. 148.

1. *Diatraea saccharalis* (Fabr.)

Phalaena saccharalis Fabricius 1794, Skrift. af Naturh.-Selk., III (2), p. 64, pl. VII, fig. 1.
Diatraea saccharalis (Fabr.) Comstock 1881, U. S. Dept. Agric. Entom. Rept. 1880, p. 240.

Costa Rica: ex coll. L. & J. de Joannis, 1 ♀. Colombia (Panama): Chiriquí, "424", ex coll. E.-L. Ragonot, 1 ♀. Venezuela: Caracas, "1134", ex coll. C. Dumont, 1 ♀; San Francisco de Apure, 30.X.1897 (L. Langlaize), ex coll. de Joannis, 1 ♀. French Guiana: St. Laurent du Maroni, ex coll. de Joannis, 5 ♀♀. Brazil: "S", ex coll. Ragonot, 1 ♀; "Amér. Mérid.", Espiritu Santu, ex coll. Ragonot, 1 ♀. Argentina: Misiones, 1910 (E. R. Wagner), 1 ♀; Tucuman (P. Girard), ex coll. Donckier, 2 ♀♀. Peru: Iquitos, 1913 (Dr. P. Reinburg), 1 ♀.

2. *Diatraea lineolata* (Walk.)

Leucanta lineolata Walker 1856, List Lep. Ins. Brit. Mus., IX, p. 100.
Diatraea lineolata (Walk.) Hampson 1895, Proc. Zool. Soc. Lond. 1895, p. 953.

Guatemala: "19-55" (Angrand), 1 ♀. Costa Rica: "S. Fr. de Guad." (San Francisco de Guadalupe), IX.1894 (J. F. de G.), ex coll. de Joannis, 1 ♀. Colombia (Panama): Chiriquí, "423", ex coll. Ragonot, 1 ♀; Sta. Fé de Bogotá, ex coll. de Joannis, 2 ♀♀. Venezuela: Caracas, "1133" & "1135", ex coll. Dumont, 2 ♀♀; Palma Sola, "1137", ex coll. Dumont, 1 ♀. French Guiana: St. Laurent du Maroni, ex coll. de Joannis, 2 ♂♂.

3. *Diatraea canella* Hamps.

Diatraea canella Hampson 1895, Ann. Mag. Nat. Hist. (6), XVI, p. 349.

French Guiana: Nouveau Chantier, 1 ♂; St. Jean du Maroni (Le Mout), ex coll. Dumont, 1 ♂; St. Laurent du Maroni, ex coll. de Joannis, 5 ♂♂.

4. *Diatraea tabernella* Dyar

Diatraea saccharalis var. *tabernella* Dyar 1911, Ent. News, XXII, p. 200.
Diatraea tabernella (Dyar) Dyar & Heinrich 1927, Proc. U. S. Nat. Mus., LXXI, no 2691, p. 15, fig. 7.

Costa Rica: "Marais Isla Matina", ex coll. de Joannis, 1 ♂.

5. *Diatraea bellifactella* Dyar

Diatraea bellifactella Dyar 1911, Ent. News, XXII, p. 205.

Brazil: Bonito, Prov. Pernambuco, 2.II.80, "186", 1 ♂.

6. *Diatraea strigipennella* Dyar

Diatraea strigipennella Dyar 1911, Ent. News, XXII, p. 206.

Brazil: Ourem, 4.II.1894, ex coll. Ragonot, 1 ♀.

7. *Diatraea albicrinella* Box

Diatraea albicrinella Box 1931, Bull. Ent. Res., XXII, p. 36, pl. 1, figs. 1, 2, pl. V, fig. 15.

Brazil: ex coll. de Joannis, 1 ♀.

Although the abdomen is missing from this specimen, there is very little doubt as to the identity of the species.

8. *Diatraea ragonoti*, new species

♂. — Paulpus and antenna light buff tinged with cartridge buff¹ below. Head and thorax light buff tinged with cartridge

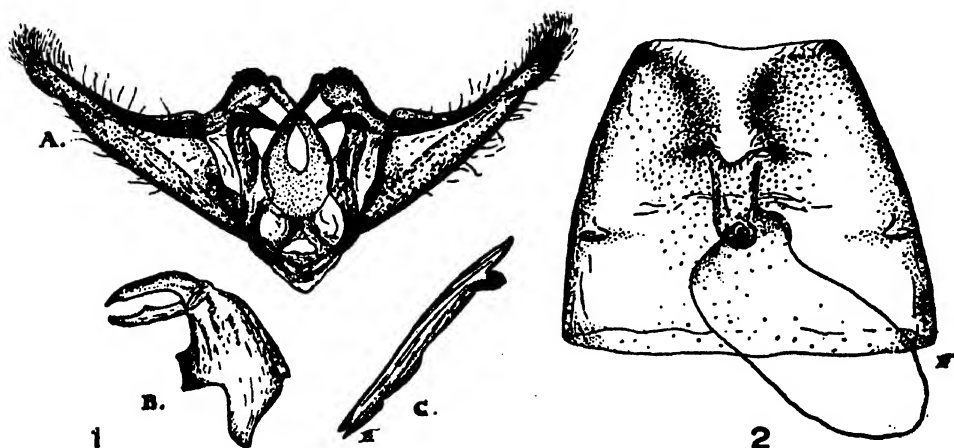


Fig. 1. *Diatraea ragonoti* sp. nov., male genitalia: a, Harpes, Vinculum and Anellus; b, Tegumen, Uncus and Gnathos; c, Aedeagus. — Fig. 2. *Diatraea ragonoti* sp. nov., female genitalia: Genital Opening, Ductus and Bursa Copulatrix.

buff. Abdomen whitish tinged with cartridge buff, proximal two segments darker (probably ochraceous tawny in fresh specimens). Fore wing with the ground colour whitish tinged with light buff or cartridge buff, the veins and interneural lines contrasting in darker shades (warm brown and clay colour respectively), and with no other pattern; a conspicuous fuscous blackish discocellular dot; a terminal series of small fuscous blackish dots. Hind wing whitish, tinged with pinkish buff on costa. Underside of fore wing cartridge buff strongly tinged with wood brown, especially along the costa and on the principal veins; of hind wing whitish tinged with light buff, tinged with pinkish buff along costa. Expanse (2 specimens): 23.0 mm. (type), 28.0 mm.

¹ Colour nomenclature according to Ridgeway's "Color Standards and Color Nomenclature", 1912 edition.

♀. — Larger and generally lighter in colour, with the veins and interneural lines less contrasting. Fore wing with the discocellular dot and most of the terminal interneural dots almost obsolete. Hind wing whitish tinged with light buff. Underside of fore wing light buff tinged with cartridge buff. Expanse (1 specimen): 28.5 mm.

The frons is slightly protuberant and gently rounded, as in *saccharalis*.

2 ♂♂, 1 ♀. Brazil: Petropolis, ex coll. E.-L. Ragonot. These specimens were collected probably during the latter years of the XIXth century. They were examined by Professor Snellen in 1895, and bear his provisional identification labels: "*Diatraea culmicolellus* Z." ²

Holotype ♂, Allotype ♀, and one Paratype ♂, in Museum National d'Histoire Naturelle, Paris.

A medium-sized straw-coloured species, closely allied to *impersonatella* (Walk.), *angustella* Dyar, and *flavipennella* Box, all of which occur in Brazil, and from which it can be distinguished with certainty only by the characteristic genitalia of both sexes (Figs. 1 & 2). The males have veins 4 and 5 in the fore wing united at the base, as was noted by Snellen on one of his labels: "*Diatraea* mais avec 4 et 5 tigées". The venation of the female appears to be normal.

Dedicated to the memory of the distinguished French lepidopterist, E.-L. Ragonot, who in 1895 made a valuable contribution to our knowledge of the genus ³, and part of whose collection the writer has been privileged to examine.

9. *Diatraea* sp., probably new.

A single specimen, with the abdomen missing, bears a label with the indication "S. Francisco de G., XI.96, H. P.", which may be extended to read: "Costa Rica: San Francisco de Guadalupe, XI.1896 (H. Pittier)". ⁴

²) *Chilo culmicolellus* Zeller = *Diatraea lineolata* (Walk.), a different insect, not yet known from Brazil.

³) "Deux Microlépidoptères nuisibles à la Canne à Sucre: *Diatraea saccharalis* Fabr. (*obliteratellus* Z.), d'Amérique, et *D. striatalis* Snell., de Java, de l'île Maurice et de la Réunion", par E.-L. Ragonot. — An. Soc. Ent. France 1895, LXIV, pp. CCXXI-CCXXII.

⁴) Invertebrados de Costa Rica. III. Lepidopteros Heteróceros, by H. Pittier and P. Biolley. — Inst. Fis. Geogr. Nac., San José, C. R., 1897, p. 4.

Sobre o Gênero *Lycomyia* Bigot, 1857 (Diptera, Asilidae).

Por Messias Carrera, Depto. de Zoologia da Secretaria da Agricultura, São Paulo.

(Com 2 figuras)

Com o presente trabalho pretendemos estabelecer a verdadeira posição sistemática do gênero *Lycomyia*, enquadrando-o no novo sistema proposto por Hardy (1934 e 1948) para os Asilidae. O material estudado consistiu de um exemplar fêmea de *Lycomyia germaini* Bigot, 1857, procedente do Chile, que nos foi ofertado pelo Pe. Francisco S. Pereira, a quem exprimimos o nosso agradecimento.

Bigot, quando descreveu este gênero, manifestou a dificuldade que sentia em aproximá-lo quer dos "Asilus" quer das "Laphrias", pois os caracteres da espécie com a qual o formara, constituíam uma transição entre aqueles dois agrupamentos. Apesar destas considerações, indicou para ele uma afinidade que, tácitamente, o impeliu para os Laphriinae.

Nesse mesmo ano (1857), Gerstaecker apontou os Asilinae como o verdadeiro lugar para *Lycomyia*, no que foi contestado de maneira ambígua por Bigot em 1859.

Schiner (1866), sem qualquer comentário, inclui este gênero entre os Laphriinae, com o que, aparentemente, concordou Van der Wulp em 1879.

Em 1891, Osten Sacken, apresentando correções ao catálogo de Williston para os Asilídeos sul-americanos, publicado nesse mesmo ano e no qual *Lycomyia* figura como Laphriinae, afirma categoricamente que a figura de *Lycomyia germaini* dada por Bigot representa um *Asilus*, achando muito estranho o fato de Schiner ter considerado tal inseto como uma "Laphrina".

Surge em 1909 o "Catalogus Dipteriorum" de Kertész e nele se encontra *Lycomyia* entre os gêneros da subfamília Laphriinae.

Hermann (1912), estudando as Laphriinae da fauna sul-americana, ao referir-se a *Lycomyia*, aceita o que fora proposto por Osten Sacken, considerando tal gênero como Asilinae.

Tomando como base o arranjo sistemático para os Asilidae estabelecido por Hermann em 1920, Bromley (1932), no estudo que fez sobre os asilídeos da Patagônia e Sul do Chile, faz este gênero voltar aos Laphriinae, colocando-o mesmo na tribo Laphriini.

A discordância reinante entre os autores quanto à posição sistemática desse gênero empresta-lhe uma situação de incerteza que em absoluto não se verifica. Tomando-se os caracteres usados por Hardy para a divisão dos Asilidae, o gênero *Lycomyia* deve figurar entre os Asilini, embora apresente uma estrutura antenal pouco comum nos gêneros componentes desta tribo.

De fato, *Lycomyia germaini* apresenta os palpos formados por um único artículo, caráter este que não é encontrado entre os gêneros da tribo Laphriini, presentemente uma tribo da subfamília Dasypogoninae que tem, como um dos seus caracteres fundamentais, os palpos bi-articulados. Em Asilinae, sem qualquer exceção até agora conhecida, os palpos são formados por um só artículo, o que já é bastante significativo para indicar a exata posição sistemática de *Lycomyia*.

Entretanto, podem-se ainda apontar outras estruturas que servirão para consolidar a localização desse gênero entre os Asilinae. Na espécie que estudamos, o prosterno é constituído por uma pequena placa situada entre as coxas anteriores e isolada do pronoto por uma larga área membranosa. Nos Asilinae este caráter pode ou não existir, mas nos Laphriini e tribos afins é sempre ausente, pois o prosterno é formado por uma grande placa que se estende até o pronoto, do qual está separado apenas por uma sutura.

A forma das antenas foi a causa provável da localização errônea deste gênero. Realmente, é neste ponto onde *Lycomyia* mais se diferencia do tipo comum dos Asilinae, pois sua antena não apresenta arista alongada como nos gêneros desta subfamília. A arista, entretanto, também não existe em *Glaphyropyga* Schiner, 1866 e *Leinendera* Carrera, 1945, tipicamente Asilinae e justamente os mais afins de *Lycomyia*, principalmente *Leinendera*. Em todos estes gêneros a antena, em lugar de arista, tem no ápice dois pequenos artículos, havendo no segundo um minúsculo espinho dorsal.

Acreditamos que o exposto não deixa dúvidas quanto à localização de *Lycomyia* na subfamília Asilinae e, dentro desta, em outra tribo não cabe este gênero a não ser nos Asilini, pois com os Leptogasterini e Ommatiini não há qualquer possibilidade de aproximação.

Os caracteres diferenciais entre *Lycomyia*, *Leinendera* e *Glaphyropyga* são os seguintes: em *Lycomyia*, a face, no meio, é tão larga quanto duas vezes, aproximadamente, o comprimento do primeiro artículo da antena; em *Leinendera* e *Glaphyropyga*

é, no máximo, tão larga quanto o comprimento desse artigo. A borda bucal em *Lycomyia* é bastante saliente, o que não acontece em *Leinendera*. As antenas em *Lycomyia* estão inseridas em uma pronunciada elevação da face, sendo este caráter praticamente inexistente em *Leinendera* e *Glaphyropyga*. Em *Lycomyia* não há cerdas dorso-centrais, que são muito desenvolvidas em

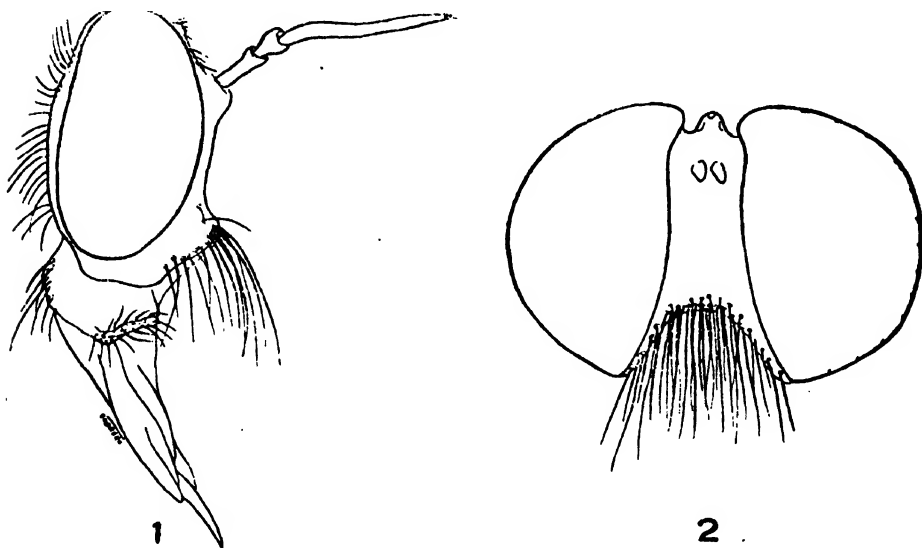


Fig. 1. *Lycomyia germaini* Bigot, cabeça vista de perfil. — Fig. 2. Idem, cabeça vista de frente.

Leinendera e *Glaphyropyga*. O escutelo com finas cerdas marginais se encontra em *Lycomyia*, em *Leinendera* com alguns finos pêlos e em *Glaphyropyga* completamente nu. Como em *Leinendera*, as calosidades laterais da região pós-escutelar são pilosas também em *Lycomyia*, nuas em *Glaphyropyga*. Em *Lycomyia* a “hypopleura” apresenta uma fileira de longas cerdas, em *Leinendera* uma ou duas muito finas e em *Glaphyropyga* apenas curta pilosidade. Cerdas da “metapleura” desenvolvidas em *Lycomyia*, muito delgadas em *Leinendera* e *Glaphyropyga*. Abdomen com cerdas laterais nestes dois últimos gêneros, inexistentes em *Lycomyia*.

Lycomyia Bigot

Lycomyia Bigot, 1857, p. 288.

Cabeça tão larga quanto duas vezes a extensão da face; fronte curta e estreita, com cerdas laterais; calo ocelar grande,

apenas com alguns pequenos pêlos; vértice mais estreito que a fronte; probóscida curta e grossa; face saliente na borda bucal e na base das antenas; mistax formado por grossas cerdas e situado sobre a saliência bucal; antenas longas, o 1.º artículo duas vezes o segundo, o 3.º maior que duas vezes os basais reunidos, fino e comprimido nos lados. Tórax: prosterno separado do pronoto por uma larga área membranosa; cerdas dorso-centrais ausentes; escutelo com pequenas cerdas marginais; calosidades laterais da região pós-escutelar pilosa. Pernas robustas e com cerdas curtas e grossas; fêmures e tíbias cilíndricos, os fêmures do par posterior levemente mais grossos na metade apical. Asas longas, ultrapassando um pouco o abdomen; 4ª célula posterior fechada e peciolada; álula grande. Abdomen longo e cilíndrico, com 8 segmentos, com exceção da genitália; o 8.º tergito cônico; cerdas laterais ausentes, exceto no 1.º segmento; pilosidade curta, mas relativamente abundante.

Lycomyia germaini Bigot

Lycomyia germaini Bigot, 1857, p. 290.

♀. — Comprimento do corpo 27 mm sem as antenas; da asa 22 mm.

Cabeça (figs. 1 e 2): face preta, com grossa pruina amarela e no meio com uma pequena mancha em forma de um V invertido de cor castanha; mistax formado por grossas cerdas brancas no meio e castanho-escuras nos lados; antenas pretas, 1.º e 2.º artículos com pequenos pêlos pretos; fronte preta no meio e com pruinoseidade amarela nos lados onde existem pequenas cerdas pretas; calo ocelar preto, com curta pilosidade amarela e preta; vértice bastante profundo; occipício preto, exceto atrás do vértice e nas margens oculares onde há pruina branca e nos lados do pescoço onde há pruina amarela; cerdas pretas em cima e na coroa occipital; barba preta e curta; probóscida preto-brilhante, com alguns pêlos esbranquiçados em baixo; palpos pretos com cerdas pretas e alguns pêlos castanhos na base.

Tórax preto com pêlos pretos; mesonoto com pruina esbranquiçada ao longo da linha mediana longitudinal, sobre a sutura transversa e um pouco nos lados; cerdas laterais: 5 pré-suturais, sendo 4 pretas e uma amarelada, 3 supra-alares amareladas, 2 ou 3 pós-alares; escutelo preto com pruina cinza e alguma pilosidade preta, cerdas marginais amarelas; região pós-escutelar

preta, com pruina cinza nas calosidades laterais onde há pêlos pretos; pilosidade das pleuras escassa; cerdas da "hypopleura" e "metapleura" amareladas.

Pernas pretas; coxas anteriores e medianas com muitas cerdas brancas e alguns pêlos pretos; coxas posteriores com poucas cerdas amareladas; pêlos e cerdas das pernas anteriores pretos, exceto na superfície dorsal dos fêmures, na superfície ventral das tíbias e dos dois primeiros tarsos onde há pilosidade amarelo-clara, escassa nos fêmures, mas grossa e abundante nas tíbias e tarsos; pêlos e cerdas das pernas medianas inteiramente pretos; fêmures posteriores com pêlos e cerdas amarelo-avermelhados em mistura com pêlos pretos e algumas certas pretas; tíbias posteriores com pêlos e cerdas pretos, exceto na superfície ventral onde há grossa e curta pilosidade amarelo-avermelhada; tarsos com pêlos e cerdas pretos, na superfície ventral dos quatro primeiros artículos há pilosidade semelhante à da superfície ventral das tíbias; garras pretas; pulvilos castanhos.

Asas vítreas, amareladas exceto ao longo das nervuras, no quarto apical e na borda posterior onde é castanha; pilosidade amarela na porção basal da nervura costal. Halteres amarelo-avermelhados, pedúnculo ferruginoso.

Abdomen vermelho-alaranjado, exceto no 1.º segmento e terço anterior do segundo que são pretos; na porção preta do segundo segmento há pruina cinza nos lados, formando uma mancha triangular que abrange as margens laterais dessa porção; pilosidade amarelo-avermelhada; cerdas laterais do 1.º segmento dessa mesma cor; alguns pêlos existem no esclerito anterior ao 1.º segmento; esternitos de cor e pilosidade semelhante à dos tergitos, apenas com algumas pequenas manchas pretas, irregulares, no meio. Genitália cônica, vermelha, com manchas pretas laterais e curtos pêlos amarelos.

Material examinado: 1 ♀, n.º 111-201 na coleção do Depto. de Zoologia.

Procedência: Rep. do Chile, Prov. de Valdivia, Ponguipulli, Janeiro de 1944.

A b s t r a c t.

The true systematic position of *Lycomyia* Bigot, 1857, is established in this paper, according to the system proposed by Hardy (1934 and 1948) for the Asilidae. *Lycomyia* must be placed among the *Asilini*. Its affinities with *Leinendera* Carrera, 1945, and *Glaphropyga* Schiner, 1866, are discussed to support this assertion. Redescriptions of *Lycomyia* and its type species are given.

Bibliografia.

- Arribalzaga, E. L., 1882, *Asilides argentinos*. — An. Soc. Cient. Argent. 14:140.
- Bigot, M. J., 1857, *Diptères nouveaux provenant du Chili*. — Ann. Soc. Ent. France Ser. 3, 5:288-290, Pl. 6, f. 3.
- 1859, Ann. Soc. Ent. France Ser. 3, Bull. 7:179.
- Bromley, W. S., 1932, *Dipt. Patag. & South Chile, Part V, fasc. 3*: 261-282.
- Carrera, M., 1945, *Estudo sobre os gêneros Glaphropyga e Senoprosopis com descr. n. gen. e n. sp.* — Papéis Avulsos, 5:175-192.
- Gerstaecker, A., 1857, Bericht über die Wissensch. Leistung. etc. der Ent. 96. (Não consultado).
- Hardy, G. H., 1934, *The Asilidae of Australia, Part I*. — Ann. Mag. Nat. Hist. Ser. 10, 13:498-525.
- 1948, On classifying Asilidae. — Ent. Month. Mag. 84:116-119.
- Hermann, F., 1912, Beiträge zur Kenntnis der südamerikanischen Dipterenfauna. — Nova Acta, Abh. Kais. Leopold.-Carol. Deutsch. Ak. Naturf. 96:272.
- 1920, Beiträge zur allgemeinen Systematik der Asiliden. — Zool. Jahrb. Abt. f. Syst. 43:161-194.
- Kertész, C., 1909, *Catalogus Dipteriorum*, Budap., 4:208.
- Osten Sacken, C. R., 1891, Additions and corrections to the Catalogue of the described species of South American Asilidae. — Berl. Ent. Zeitschr. 36:419.
- Philippi, R. A., 1865, Aufzählung chilenischen Dipt. — Verh. Zool.-bot. Ges. Wien, 15:694.
- Schiner, J. R., 1866, Die Wiedemann'schen Asiliden. — Verh. Zool.-bot. Ges. Wien, 16:649-722.
- 1868, Reise der Novara, Dipt. 169.
- Stuardo Ortiz, C., 1946, *Catalogo Dipt. Chile* 84.
- Williston, S. W., 1891, Catalogue of the described species of South American Asilidae. — Trans. Amer. Ent. Soc. Phil. 18:81.
- Wulp, F. M. van der, 1879, Verslag-Tijdschr. Ent. 22:XXI.

American Tingidae (Hemiptera).

By Carl J. Drake, Ames, Iowa.

The present paper contains the description of seven new species of Tingidae and synonymical notes on three others. The types of new species are in the Drake collection.

Teleonemia patagonica, n. sp.

Head brown, with slender, testaceous spines, the hind pair longest, adpressed; rostrum not attaining middle of metasternum, the laminae widely separate, cordate and open behind on metasternum. Antennae moderately long, moderately stout, shortly pilose; segment I short, slightly stouter and a half longer than II; III yellowish brown, straight, two and one-half as long as IV, the latter brown. Legs moderately stout, the femora brown, the tibiae testaceous, the tarsi blackish.

Pronotum brown, moderately convex, coarsely pitted, with short pale pile on disc and nervures; hood moderately large, tectiform, slightly projecting in front; median carina moderately high, uniseriate, the areolae large, mostly subquadrate; lateral carinae long, about as high as median, strongly constricted behind disc, slightly convex in front, the ends in front against sides of hood; triangular process areolate, testaceous; paranota reflexed, almost upright, widest opposite humeri, there biseriate, narrower and uniseriate in front. Elytra moderately wide, widest opposite apex of hind process, each elytron obliquely truncate inwardly at apex; costal area testaceous, a narrow transverse band in front of middle and a few cells at apex fuscous, mostly uniseriate, biseriate in band and widest part, largely uniseriate on one side and largely biseriate on other, the areolae (save in band) hyaline; subcostal area mostly biseriate, triseriate in widest part; discoidal area large, about two-thirds as long as elytra, narrowed at both ends, widest at middle, there four areolae deep, the outer margin sinuate; sutural area widely reticulated.

Length, 4.00 mm.; width, 1.70 mm.

Type, female, Rio Santa, Patagonia, Argentine.

This species is related to *T. simulans* Drake and *T. chacoana* Drake but easily separated from them by the narrow form, lower carinae, narrower costal area.

Teleonemia lanceolata (Walker)*Monanthia lanceolata* Walker, Cat. Hem. Brit. Mus., 6:194, 1873.*Teleonemia albomarginata* Champion, Biol. Centr.-Amer., Rhynch., 2:43, Pl. 11, figs. 18 and 18a, 1893.*Teleonemia lanceolata* Drake & Hambleton, Jr. Wash. Acad. Sci. 34 (4): 121, p. 121.*Teleonemia albomarginata* Monte, Papéis Avulsos, 8 (19): 233, 1947.

As the original descriptions of *lanceolata* Walker and *albomarginata* Champion refer to the same species, the latter name must be suppressed as a synonym. Walker's description covers the salient points of his species, and has priority by many years. Champion's descriptions and figure are excellent. *Lanceolata* is common and widely distributed in Central and South America.

Ambycysta enodis, n. sp.

Large, dark brown. Head black, with five short spines, the median and hind pair adpressed, and front pair erect. Eyes large, black. Antennae long, rather slender, indistinctly pilose, black-fuscous; segment I short, stout, stouter and nearly twice as long as II; III long, slightly enlarged and obliquely truncate at apex; IV long, clothed with pale hairs, scarcely swollen. Legs long, slender, black-ferrugineous. Rostrum long, reaching to apex of second venter.

Pronotum brown, slightly convex, coarsely pitted, tricarinate; hood large, blackish (including areolae), narrowest in front of middle, widest just behind middle, somewhat flattened above (compressed dorso-ventrally), nearly three times as long as high, projecting over basal part of head, posteriorly extending to base of pronotal disc; hind process dark brown, areolate; paranota moderately large, slightly reflexed, mostly triseriate, biseriate behind; median carina raised, uniseriate; lateral carinae lower, uniseriate, divergent posteriorly behind hood, concealed under hood.

Elytra broad, with outer margins nearly parallel on apical half, the apices not widely separated, the areolae considerably embrowned apically; costal area very wide, three areolae deep at base and five in widest part, the areolae large, clear (save behind); subcostal area mostly triseriate, the areolae small; discoidal area large, extending to middle of elytra, dark fuscous posteriorly, widest beyond middle, there five areolae deep, wide at apex; sutural area very large, widely areolate. Margins of paranota and elytra bounded by costate nervures, the veinlets moderately stout. Orifice distinct. Hypocostal ridge uniseriate.

Length, 6.45 mm.; width, 3.10 mm.

Separated from *cornuta* (Monte) and *championi* (Drake) by the flatter hood and wider costal area; from *gibbifera* (Picado) by its darker color, longer body and lower hood. The latter is largely testaceous in color and the hood is shorter and higher.

Pachycysta adolopa, n. sp.

Large, broad, brown, the hairs short, fine. Head moderately long, dark brown, the spines short, adpressed. Bucculae not meeting in front. Orifice present. Hypercostal ridge uniseriate, the areolae small. Antennae moderately long, dark brown, shortly finely pilose; segment I stout, short, thicker and twice as long as II; III long, slender, slightly tapering apically, slightly more than three times as long as IV; IV dark, scarcely enlarged, with straight hairs. Rostrum very long, almost reaching apex of fourth venter. Legs dark brown, very shortly setose.

Pronotum moderately convex, dark velvety brown, coarsely pitted, tricarinate; median carina moderately raised, uniseriate, the areolae small; lateral carinae uniseriate, divergent behind, concave along outer margin, turned over inwardly at base of disc and there practically touching median carinae; hind process triangular, areolate; hood moderately large, compressed laterally, projecting over base of head, behind not quite reaching middle of disc, sub-rounded above, distinctly longer than high; paranota broad, rather short, narrowly rounded at outer margin. Elytra widest just in front of middle, the apices a little separated in repose; costal area wide, mostly biseriate, triseriate in widest part, the areolae large, clear, subquadrate; subcostal area narrow mostly biseriate, much wider behind discoidal area; discoidal area large, reaching slightly beyond middle of elytra, with outer boundary strongly sinuate, widest beyond middle, there six or seven areolae deep, rather sharply narrowed at apex; discoidal area widely areolate.

Length, 5.50 mm.; width, 1.75 mm.

Type, female, Maracapata, Peru.

The narrower costal area, largely biseriate, and smaller hood separate this species from other members of the genus.

Nyctotising nexilis, n. sp.

Large, black-fuscous, some of the areolae sub-opaque or brownish. Antennae slender, black, indistinctly pilose; segment I rather short, stouter and twice as long as II; III long, very

slender, somewhat brownish apically, three times as long as IV, the latter black, slightly swollen, clothed with straight pale hairs. Rostrum long, slender, black, not quite reaching end of sulcus. Elytra broader and longer than in *N. osborni* Drake; the costal area eight areolae deep in widest part. Other characters very similar to *osborni*.

Length, 5.45 mm.; width, 1.75 mm.

Type (female) and one paratype, Tingo Maria, Peru, taken by E. J. Hambleton.

On account of its larger size, and wider costal area, it seems advisable to treat *N. nexilis* as a species rather than a variety of *N. osborni*.

Gargaphia subpilosa Berg

Gargaphia subpilosa Berg, Hem. Arg., 1879, p. 188.
Gargaphia iridescens Bergroth, Ann. Soc. Ent. Belg. 62: 149, 1922.
Gargaphia subpilosa Drake, Ann. Ent. Soc. Amer., 24:52, 1931.
Gargaphia subpilosa Drake & Poor, Not. Mus. La Plata, 3:109, 1938.
Gargaphia bergi Monte, Arq. Inst. Biol., 11 (35) :301-308, fig. 1, 1940.

Only two specimens of the type series of *Gargaphia subpilosa* Berg are now known to be preserved. These specimens, male and female, both mounted on the same rectangular point, are in the Berg collection of Hemiptera, La Plata Museum, Argentina, and are in a good state of preservation.

A number of years ago, the late Dr. Carlos Bruch kindly took photographs of all the types of Tingidae in the Berg collection. These photographs, including plates, were purchased by the late Dr. W. J. Holland of the Carnegie Museum, Pittsburgh, Penna., and presented to the writer. According to Dr. Bruch, the pin, which carried the point bearing the two examples of *G. subpilosa* also bore a "typus" label and the specific name *Gargaphia subpilosa* Berg in Berg's handwriting. Dr. Bruch was a good photographer and a noted entomologist, and it is unfortunate that the "typus" label has been removed and lost since he took the photographs.

In 1940, Drake and Poor studied the types and other Tingidae in the Berg collection. The types, following the Zoological Code, were designated for each species described by Berg. It should be noted that all specimens of the type series bore the label "typus". In the case of *Gargaphia subpilosa* Berg, the male was designated as the "type" (holotype) and female as the allotype.

According to Monte (1940) there is also a specimen of *Corythaica cyanthicolis* (Costa) bearing a "typus" label in the Berg collection as *G. subpilosa*. It is inconceivable to think that

the noted Hemipterist Berg could have made such an error. The latter may be the "typus" label that was accidentally removed from the two remaining specimens of *G. subpilosa* Berg.

Monte (1940) reviewed the literature of *G. subpilosa* Berg, and then designated a mutilated specimen of *Gargaphia* in the Museo de Ciencias, Buenos Aires, as the type of *G. subpilosa* Berg. This was a serious error as Berg's types of Tingidae and other Hemiptera are deposited in the La Plata Museum.

Through the kindness of Mr. José de Carlo of Buenos Aires, the writer has been permitted to examine the specimen studied by Monte. It is badly damaged, mounted on a rectangular card point. The left elytron and all but the basal two segments of right antenna are missing. The pin also bears two separate number labels, 5653 and 77, and a species label "*Gargaphia subpilosa* Berg." The identification is not in Berg's handwriting. Officials and entomologists of the Museum are not able to identify the handwriting. The generic name *Gargaphia* is wrongly spelled, and contains an extra "r". It has been suggested that the label was probably written by a servant or helper in the Museum. Berg probably never saw the specimen. It does not belong to the type series of *Gargaphia subpilosa*, and cannot be considered as a type.

It is quite evident from the original description and notes, that two or three species of *Gargaphia* may have been involved in the original description, as indicated by characters of paranota and the costal areas. Berg probably retained only specimens, which he considered *G. subpilosa* in his collection. The type designation of Drake and Poor will have to stand. This makes *Gargaphia bergi* Monte a synonym of *G. subpilosa* Berg.

It should be noted that *subpilosa* Berg is widely distributed in Argentina, Uruguay, Paraguay and southern Brazil. In some specimens both paranota and costal area of elytra are triseriate in their widest parts, although the biseriate condition seems to be the commoner form. Monte (1940) has published an excellent figure of the biseriate form of *G. subpilosa* Berg (= *G. bergi* Monte). Specimens of *G. subpilosa* Berg (triseriate paranota and costal area in widest part) from Argentina were confused by Bergroth (1922, p. 149) with *Gargaphia iridescens* Champion from Central America and Mexico and Southern United States.

Leptopharsa perbona Drake

Leptopharsa perbona Drake, Am. Mus. Nov., No. 398, p. 2, 1930.
Leptopharsa perbona Drake & Hambleton, Jr. Wash. Acad., Sci., 34 (4) :128, 1944
Leptopharsa spectabilis Monte, Arq. Inst. Biol., 11:290, p. 290, 1940.
Leptopharsa spectabilis Monte, Rev. Bras. Biol., 4 (4) :460, figs. 2 & 3, 1944.

As pointed out by Drake & Hambleton (1944) *L. spectabilis* Monte is a synonym of *L. perbona* Drake. This confusion was due to the fact that two other species have been wrongly determined as *L. perbona*. The hood and median carina are good characters for separating *L. spectabilis* and *L. pacis* Drake & Hambleton.

Leptopharsa pacis Drake & Hambleton

Leptopharsa pacis Drake & Hambleton, Arq. Inst. Biol., 10 :160, 1939.
Leptopharsa perbona Monte, Rev. Bras. Biol. 4 (4) :461, fig. 3, 1944.

The much higher hood and more strongly arched median carina separate *L. pacis* from *L. perbona* Drake.

Corythucha lowryi, n. sp.

Hood large, strongly inflated and subglobose behind, gradually narrowed anteriorly from a little behind the middle, scarcely higher than broad behind, less than twice as long as high, extending a little in front of head, the hind portion covering most of pronotal disc. Median carina low, about two-thirds as long as hood, slightly arched above, composed of one row of areolae, at highest part, scarcely one-fourth of height of hood; lateral carinae short, raised anteriorly, not extending anteriorly beyond hind process. Paranota moderately large, with outer margins spinose and rounded, mostly four to five areolae wide. Antennae longly pilose, testaceous, with apical segment brownish and a little more than one-third of the length of the third.

Legs testaceous, the tarsi brownish. Elytra subquadrate, longly shallowly concave along outer margins, spinose along basal two thirds, the tumid area longly and narrowly raised; the costal area broad, triseriate, the areolae moderately large. General color testaceous, the areolae hyaline, the elytra with pale brownish basal and subapical bands. Spines rather short, testaceous, with black tips.

Length, 3.35 mm.; width, 2.00 mm.*

Type (male), allotype (female) and 1 paratype, Frederic, Wisconsin, July 2, 1915, taken on hornbeam, *Carpinus caroliniana* Walt., by P. R. Lowry. Named in honor of the collector.

Separated from *C. pallipes* by its smaller size and larger hood.

Corythucha abdita, n. sp.

Small, whitish testaceous, with some brown spots. Antennae testaceous, longly pilose, the fourth segment one-half the length of three. Pronotum stramineous, slightly convex; hood long, reaching a little in front of head, moderately inflated behind, the anterior half very narrow, twice as long as high, the width of hind portion distinctly less than its height; median carina rather short, arched above, not as high as hood and about half as long; lateral carinae very short; paranota not very large, four areolae wide, with margins and some nervures spinose, also nervures of hood and median carina. Elytra subquadrate, with small and rather sharply raised tumid elevation, the costal area largely triseriate, the outer margins slightly concave; spines along margins and on veins moderately long, with dark tip. Legs pale testaceous.

Length, 3.40 mm.; width, 2.00 mm.

Type (male) and 2 paratypes, S. Geronimo, Guatemala.

This species was confused by Champion with *C. decens* Stal. It is more closely allied to *C. gossypii* Fabr., very similar in color and markings, but armed with longer spines and much shorter median carina. *Gossypii* is slightly longer, has larger paranota, and costal area of elytra is largely biseriate. It has also larger areolae.

Corythuca cerasi, n. sp.

Testaceous, subapical and subbasal bands of elytra and spots on hood, paranota and along inner portion of elytra dark fuscous. Pronotum stramineous, finely pitted, the hind portion triangular, areolate and testaceous; median carina low, much shorter than hood, at highest point less than one-fourth as high as hood; lateral carinae very short, scarcely extending anteriorly beyond triangular process. Hood moderately large, somewhat globose behind, strongly constricted near middle and then narrowed anteriorly, behind covering most of pronotal disc, its length a little less than twice its height. Paranota large, about twice as long as wide with outer margins rounded and shortly spinose.

Elytra, subquadrate, shortly spinose along basal half of lateral margins, with small, subglobose elevation, the costal area wide, triseriate, the areolae clear save in transverse fascia. Legs slender, testaceous. Antennae testaceous, with terminal segment

brownish, the hairs moderately long. Rostrum testaceous, extending between middle legs.

Length, 3.65 mm.; width, 2.00 mm.

Type (male) and allotype (female), Wenatchee, Washington, on cherry, October 4, 1940. Paratypes, many specimens on cherry (also oak) Clarke, Indiana, August 6, 1905, A. B. Wolcott; 1 specimen, Miller, Indiana, July 7, 1918, E. Liljeblad.

This is the fourth species of *Corythucha* described from wild cherry. The other species, *C. associate* O. & D., *C. pruni* O. & D. and *C. padi* Drake are distinctly larger and have much larger hood.

Ceroplastinae da Região Neotropical. (Diptera, Mycetophilidae).

Por John Lane, Departamento de Parasitologia, Faculdade de Higiene e Saúde Pública da Universidade de S. Paulo, Brasil.

(Com 14 figuras)

O material com que contamos para o estudo desta interessante subfamília é, na maior parte, proveniente dos Estados de S. Paulo, Rio de Janeiro e Mato Grosso. Temos alguns exemplares de outros Estados, bem como um do México. Algumas espécies são representadas por bom número de espécimes, o que possibilitou melhor estudo. Até agora tal subfamília tem sido estudada por pequeno número de exemplares que chegaram às mãos de alguns especialistas.

Como era de se esperar, encontramos várias espécies novas, o que confirma a hipótese de Edwards de que a nossa fauna de micetofilídeos é quase desconhecida. Os números dos exemplares são os da coleção Entomológica do Departamento de Parasitologia e Higiene Rural da Faculdade de Higiene e Saúde Pública da Universidade de São Paulo. O critério genérico e subgenérico bem como os termos morfológicos aqui usados são os adotados por Edwards (1924) e Tonnoir (1929). Tivemos a oportunidade de observar que os característicos de genitália propostos por Edwards (1929) para a classificação sub-genérica, serviram para a separação de quase todas as espécies, o que, mais uma vez, mostra o valor dos mesmos.

Ceroplastus (Ceroplastus) mexicanus, n. sp.

Comprimento do corpo 9,5 mm; asa 7 mm. (Todas as nossas medidas são aproximadas).

Fêmea. — Cabeça: Palpo com o último segmento alongado, castanho. Fronte estreita, amarelada. Occipício amarelado em cima, no meio um pouco mais escuro e com leve tonalidade castanha. Ocelos dois, implantados em um tubérculo discreto, afastados entre si e das margens oculares. Antena com o escapo e toro castanho-claros, a porção superior amarelada; flagelo enegrecido e fortemente achatado.

Tórax: Mesonoto castanho-amarelado salvo o seguinte desenho castanho-escuro: duas manchas laterais, duas aos lados da região pré-escutelar, e mais duas estrias que se unem adiante do escutelo formando um V. Escutelo amarelado nos lados, no meio castanho-escuro. Postnoto amarelado, um pouco mais es-

curo no meio. Pleuras amareladas, salvo os seguintes escleritos que são castanho-escuros ou enegrecidos: propleura, anepisteronito, porção inferior da esternopleura, pteropleurito, porção inferior e margem superior do pleurotergito.

Pernas: Coxas amareladas, a mediana e a posterior com grandes manchas castanho-escuras. Trocânteres amarelados, os mediano e posterior internamente escuros. Fêmures amarelados, salvo pequena porção basal do mediano e extensa marcação basal no posterior que são castanho-escuras. Tíbias e tarsos escuros. Tíbia anterior com um esporão, a mediana e a posterior com dois, sendo que o externo tem dois terços do comprimento do interno.

Asa com as seguintes manchas enegrecidas: a primeira no meio e indo desde a costa até M_2 ; a segunda pré-apical e indo da costa até M_3 ; a terceira quase na base da asa e envolvendo a nervura sub-costal. A margem inferior da asa também é um pouco escurecida. Nervuras M_2 , M_3 , Cu_2 e An não atingindo a margem da asa. Balancim com a base da haste enegrecida, o restante, bem como o capítulo, amarelados.

Abdomen com os tergitos enegrecidos, salvo os II a V que possuem manchas látero-apicais amareladas. Esternitos amarelados, salvo faixas basais enegrecidas. Cerci muito delgados e alongados.

Macho. — Desconhecido.

Tipo. — Uma fêmea, registrada sob o n. 7582.

Localidade tipo. — México, Oaxaca, Tuxtepec, X.1947 (Lassmann col.).

Ceroplatys (Ceroplatys) townsendi, n. sp.

Comprimento do corpo 7 mm; asa 5 mm.

Macho. — Cabeça: Palpo amarelado, o segmento terminal curto, porrecto e recoberto de pilosidade castanha. Fronte estreita e amarelada. Occipício amarelado, revestido de pilosidade castanha. Tubérculo ocelar enegrecido, com três ocelos, os laterais grandes, o mediano muito pequeno. Antena com o escapo, toro e segmentos flagelares castanhos, o flagelo fortemente achatado.

Tórax: Mesonoto amarelado, salvo desenho castanho e indistinto formado por duas estrias, que se unem na região pré-escutelar e formam um V; uma mancha anterior e outra alongada posterior; revestimento constituído de cerdosidade amarela,

nos lados enegrecida. Escutelo amarelado, castanho-escuro na base. Postnoto castanho. Pleuras amareladas, com as seguintes regiões castanhas: propleura, anepisternito, esternopleura na metade posterior e pleurotergito na base e ápice.

Pernas: Coxas basalmente amareladas, distalmente castanhas, principalmente na porção antero-inferior do par mediano. Trocânteres amarelados, salvo o mediano em pequena faixa basal e o posterior em quase toda a sua metade basal que são castanho-escuros. Tibias e tarsos escuros. Tibia anterior com um esporão, a mediana e a posterior com dois sendo que o externo tem menos da metade do comprimento do interno.

Asa: Com três manchas escuras, sendo uma na base, outra no meio e a outra antes do ápice; a mediana alcança M_2 e a pré-apical M_1 . M_1 , M_2 , M_3 e Cu_2 não alcançando o ápice da asa. Balancim com a haste amarelada e o capítulo enegrecido.

Abdomen com os tergitos amarelados, salvo manchas castanho-escuras na porção baso-lateral de II a VI, VII aparentemente enegrecido. Esternitos amarelados. Revestimento constituído de cerdosidade castanho-escura.

Genitália (vide fig. 1): Basistilo sub-quadrangular, o ápice formando ponta. Dististilo sub-dividido em duas porções, a externa quase duas vezes o comprimento do basistilo, enegrecida, fortemente cerdosa e terminada numa protuberância delgada; a interna com quase a metade do comprimento da interna, a margem interna revestida de grossas e curtas cerdas negras. Mesosoma como na figura 1. Nono tergito do tamanho da divisão interna do dististilo e homogêneamente cerdoso.

Fêmea. — Desconhecida.

Tipos. — Holótipo macho, parátipo um macho; registrados sob os ns. 7583 e 7584.

Localidade tipo. — Holótipo do Brasil, Estado de S. Paulo, Itaquaquetuba, XI (C. H. T. Townsend col.); parátipo do Estado do Pará, Urucurituba, 28.III (C. H. T. Townsend col.).

Damos abaixo uma chave para separar as espécies deste sub-gênero, que ocorrem na região neotropical.

Chave para os adultos de *Ceroplatus* s. str.

1. Com dois ocelos 2.
- Com três ocelos *townsendi* n. sp.
2. Balancim com o capítulo enegrecido; coxa anterior com mancha apical escura; fêmures enegrecidos tanto na base como no ápice. *fiebrigi* Edwards, 1934.

- Balancim com o capítulo esbranquiçado; coxa anterior amarelada; fêmures mediano e posterior enegrecidos só na base.....
mexicana n. sp.

Ceroplatus (Neoceroplatus) minimax Edwards 1934

1934, *Ceroplatus (Ceroplatus) minimax* Edwards, Rev. Ent., 4: 358.

1941, *Ceroplatus (Neoceroplatus) minimax* Edwards, Rev. Ent., 12: 304.

Temos um macho que concorda com a descrição original, salvo os fêmures mediano e posterior que possuem pequeno anel escuro logo após a base.

Proveniência do material estudado. — Brasil, Estado de Goiás, Corumbá, XI.1945 (M. P. Barretto col.).

Ceroplatus (Placoceratias) bimaculipennis
 (Enderlein, 1910)

1910, *Placoceratias bimaculipennis* Enderlein, Stet. Ent. Zeitg., 72: 149.

A nossa coleção consta de quatro machos.

Proveniência do material estudado. — Brasil, Estado de Mato Grosso, Maracaju, VI.1937 (R. C. Shannon col.).

Ceroplatus (Placoceratias) barrettoi, n. sp.

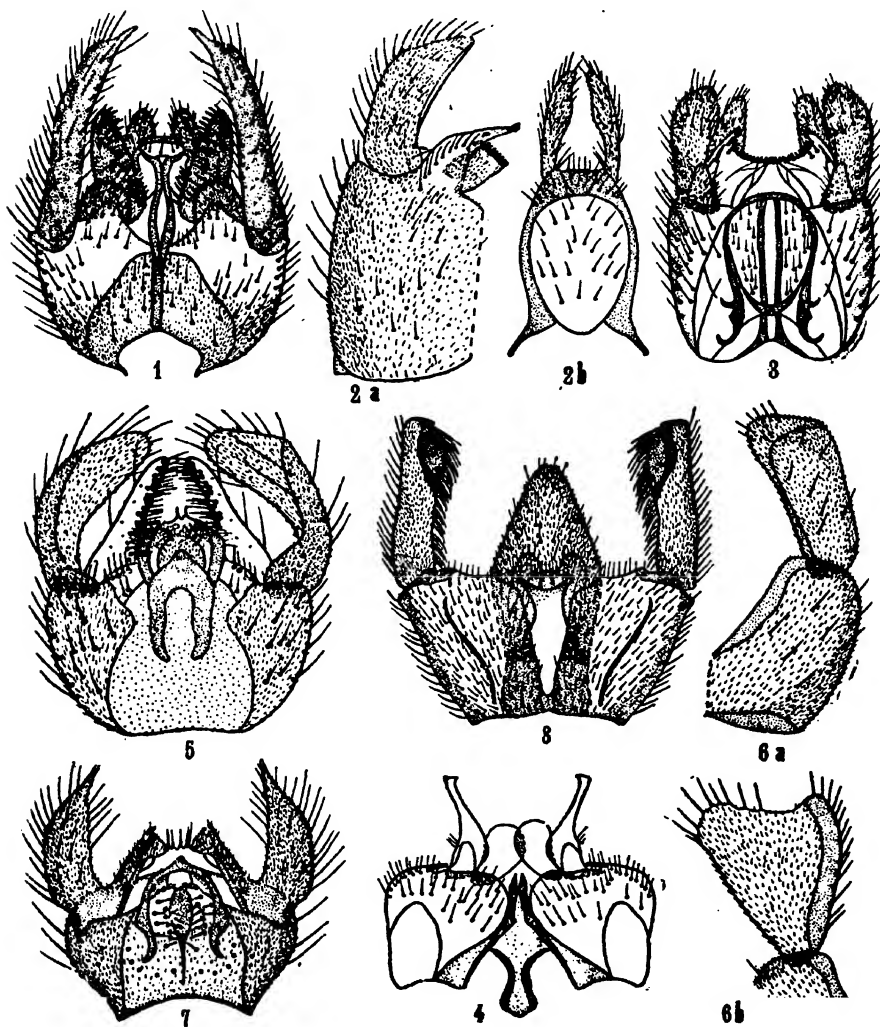
Comprimento do corpo 6 mm.; asa 3,5 mm.

Machos. — Cabeça: Partes bucais muito reduzidas. Palpo com o segmento terminal castanho-escuro, engrossado no meio, terminado em ponta. Fronte castanha. Antena com o escapo e toro amarelados, o flagelo enegrecido e achatado. Occipício enegrecido, o revestimento formado por cerdasidade negra. Ocelos dois, bem afastados dos olhos.

Tórax: Mesonoto amarelado, salvo a porção humeral que é esbranquiçada e as margens e duas estrias que se unem na região pré-escutelar formando um V e que são castanho-enegrecidas; revestimento formado por cerdasidade enegrecida. Escutelo castanho-escuro, postnoto castanho-escuro. Pleuras amareladas, salvo o anepisternito, grande mancha na esternopleura e a porção superior do pleurotergito bem como a sua margem pósteroinferior que são castanho-escuros.

Pernas: Coxas amareladas, a posterior com uma mancha extensa na metade distal. Trocânteres amarelados, o mediano e o posterior escuros. Fêmures amarelados, exceto anéis basais escuros no mediano e no posterior. Tíbias e tarsos escuros. Tíbia anterior com um esporão, a mediana e a posterior com dois, sen-

do que o externo é cerca de dois terços do comprimento do interno na posterior. Basitarso anterior mais de duas vezes o comprimento da tibia correspondente.



Genitália do macho:

Fig. 1. *Ceroplatus (Ceroplatus) townsendi* n. sp. — Fig. 2. *Ceroplatus (Placoceratlas) barrettii* n. sp.; a, basistilo e dististilo; b, mesosoma e nono tergito. — Fig. 3. *Ceroplatus (Placoceratlas) imitans* n. sp. — Fig. 4. *Ceroplatus (Cerotelion) enderleini* n. sp. — Fig. 5. *Heteropterna tetraleuca* Edwards. — Fig. 6. *Heteropterna trileuca* Edwards; a, basistilo e dististilo; b, vista lateral do dististilo. — Fig. 7. *Heteropterna abdominalis* n. sp.

Asa hialina. Balancim com a hoste esbranquiçada e o capitulo enegrecido.

Abdomen: Tergitos castanho-escuros, salvo largos anéis ba-

sais de II a IV e manchas baso-laterais em V e VI. Esternitos amarelados, com faixas apicais enegrecidas e progressivamente maiores para o ápice, VI totalmente enegrecido.

Genitália (vide fig. 2): Amarelada. Basistilo quase duas vezes a maior largura, sub-quadrangular, terminado em duas estruturas, uma em forma de bico e tendo na ponta duas cerdas rombas e muito unidas; a outra sub-quadrangular e terminada em uma fileira de cerdas curtas e negras. Dististilo com dois terços do comprimento do basistilo, largo e não diferenciado no ápice. Nono tergito em dois filamentos delgados e mais curtos que o dististilo. Mesosoma quase hialino, em forma de placa sub-quadrangular.

Fêmea. — Desconhecida.

Tipos. — Holótipo macho; parátipos três machos. Registrados sob os ns. 7563 a 7565.

Localidade tipo. — Brasil, Estado de Goiás, Corumbá, XI.1945 (M. P. Barretto col.).

A espécie acima descrita aproxima-se de *C. fuscithorax* Enderlein, pois ambas possuem asa hialina. Separa-se de *fuscithorax* pela coloração da cabeça, tórax e abdomen.

Ceroplatys (Placoceratias) imitans, n. sp.

Comprimento do corpo 8 mm.; asa 5 mm.

Macho. — Cabeça: Partes bucais muito reduzidas. Palpo com o segmento terminal porrecto, amarelado e cerdoso. Fronte estreita, castanha. Occipício enegrecido e revestido de pilosidade dessa cor. Tubérculo ocelar pouco saliente e com dois ocelos bastante separados entre si e bem afastados dos olhos. Antena com o escapo e toro amarelo-claros; flagelo achatado, os segmentos castanho-enegrecidos.

Tórax: Mesonoto com tegumento amarelado e os calos humerais esbranquiçados. Com a seguinte marcação castanho-enegrecida: duas faixas laterais e duas estrias que se unem na região pré-escutelar formando um V; revestimento formado por cerdosidade enegrecida. Escutelo amarelado, castanho-enegrecido no meio. Postnoto amarelado. Pleura amarelada, exceto o anepisternito, metade inferior do esternopleurito, base e margem inferior do pteropleurito que são castanho-escuros.

Pernas: Coxas amareladas, salvo a posterior que possui mancha enegrecida no meio e externamente. Trocânteres amarelados. Fêmures amarelados, o mediano e posterior com anéis pré-basais

enegrecidos. Tíbias e tarsos amarelados, porém mais escuros. Tíbia anterior com um esporão, a mediana e a posterior com dois, sendo que o exeterno mediano tem três quartos, e o posterior dois terços do comprimento do interno. Basitarso anterior com bem mais de duas vezes o comprimento da tíbia correspondente.

Asa sem manchas, mas levemente enfuscada. Nervura costal indo pouco além de R_5 . Nervura R_4 atingindo a costal um pouco adiante de R_1 . Nervuras M_2 , M_3 , Cu_2 e An não atingindo a margem da asa. Balancim com a haste amarelada e o capítulo enegrecido.

Abdomen com o primeiro tergito enegrecido, II com manchas baso-laterais grandes, III a VI com tais manchas progressivamente maiores e unindo-se na linha mediana. Esternitos amarelados, VI com faixa apical enegrecida.

Genitália (vide fig. 3): Basistilo duas vezes a maior largura, espiculoso e esparsamente cerdoso. Dististilo com dois lobos, o maior três quartos do comprimento do basistilo, largo, o ápice um pouco adelgado, o menor bifendido, fortemente escavado no meio, o ramo maior com duas ou três cerdas curtas e rombas. Mesosoma grande, isto é, mais longo que o comprimento do basistilo, o ápice terminado em duas abas munidas na margem súpero-interna de dupla fileira constituída de aproximadamente doze cerdas diferenciadas, isto é, curtas, rombas e enegrecidas. Nono tergito do comprimento do ramo mais longo do dististilo.

Fêmea. — Desconhecida.

Tipo. — Um macho. Registrado sob o n. 7681.

Localidade tipo. — Brasil, Estado de S. Paulo, Porto Cabral, IV.1944. (Travassos F., Carrera e Dente col.).

A espécie acima aproxima-se de *C. longimanus* Williston, 1896 pois ambas possuem asa enfuscada. Além de outros caracteres separa-se de *C. longimanus* pela coloração do abdomen.

Ceroplatus (Cerotelion) enderleini, n. sp.

Comprimento do corpo 5 mm; asa 4,2 mm.

Mach o. — Cabeça: Palpo com o segmento terminal curto, globoso, e enegrecido. Fronte larga, castanho-escura. Antena com o escapo e toro enegrecidos, o flagelo castanho-escuro, arredondado e aproximadamente o comprimento do tórax. Occipí-

cio enegrecido, o tubérculo ocelar discreto e com três ocelos, os laterais grandes, o mediano muito pequeno.

Tórax: Mesonoto castanho, com três estrias medianas e duas laterais mais escuras e revestidas de cerdas dessa cor, o restante glabro. Escutelo castanho, mais escuro no meio e nas margens. Postnoto e pleuras castanho-escuras.

Pernas: Coxa anterior amarelada, a mediana e posterior castanhas. Trocânteres, fêmures e tíbias castanhos, os tarsos mais escuros. Tíbia anterior com um esporão, a mediana e posterior com dois, sendo que o externo tem dois terços do comprimento do interno.

Asa enfuscada, principalmente na região anterior e para o ápice, o restante hialino, as nervuras alcançando a margem. Balancim amarelado.

Abdomen castanho-escuro, com faixas muito estreitas e amareladas nos tergitos III a VII.

Genitália (vide fig. 4): Basistilo tão largo quanto alto, cerdoso. Dististilo sub-dividido, o primeiro apêndice do comprimento do basistilo e muito delgado, encurvado e terminando em longo bico; o segundo lobo quase circular e glabro. Mesosoma grande e largo, com dois bicos apicais e ao lado com duas abas.

Fêmea. — Desconhecida.

Tipo. — Holótipo um macho; registrado sob o n. 7586.

Localidade tipo. — Brasil, Estado de São Paulo, Juquiá, XI.1945 (J. Lane col.).

Esta é a primeira espécie pertencente à este subgênero, descrita da região Neotropical. *Cerotelion vespiformis* de Enderlein é, conforme Edwards, uma *Platyura*.

Ceroplatus (Cerotelion) nigricans, n. sp.

Comprimento do corpo 8 mm; asa 6 mm.

Fêmea. — Cabeça enegrecida. Palpo com o segmento terminal muito curto, grosso, quase tão largo quanto longo, revestido de pruinoseidade esbranquiçada. Fronte larga, bastante pilosa. Antena com o escapo e toro enegrecidos, o flagelo arredondado e com o comprimento do tórax, o primeiro segmento castanho, os outros enegrecidos. Ocelos três, implantados em discreto calo ocelar, os laterais grandes e avermelhados, o mediano muito pequeno. Occipício revestido de pilosidade enegrecida.

Tórax: Mesonoto enegrecido, com indícios de estrias mais

escuras ainda na porção mediana; revestido de pilosidade enegrecida mas com áreas glabras. Escutelo enegrecido-brilhante. Postnoto e pleuras também enegrecidos.

Pernas: Coxas enegrecidas, com regiões indistintas de coloração castanho-escura. Trocânteres, fêmures e tíbias castanho-enegrecidos, o fêmur anterior mais claro. Tarsos enegrecidos. Tíbia anterior com um esporão, a mediana e a posterior com dois, sendo que o externo é mais de dois terços do comprimento do interno.

Asa enfumaçada, mais escura anteriormente. R_4 alcançando a nervura costal, todas as nervuras atingindo a margem da asa salvo a anal. Balancim com a haste castanha e o capítulo enegrecido.

Abdomen com os dois primeiros tergitos enegrecidos, III a VI castanhos, VII enegrecido bem como a genitália. Esternitos castanhos.

Macho. — Desconhecido.

Tipo. — Holótipo fêmea; registrado sob o n. 7585.

Localidade tipo. — Brasil, Estado de S. Paulo, Campos do Jordão, XII.1945 (J. Lane col.).

Ceroplastus (Euceroptatus) singularis, n. sp.

Comprimento do corpo 4,5 mm; asa 3,5 mm.

Macho. — Cabeça: Palpo com o segmento terminal muito pequeno, globoso, enegrecido. Fronte muito estreita e castanho-escura. Antena com o escapo e toro enegrecidos; flagelo castanho-escuro, fortemente achatado, os segmentos com cerdas diferenciadas na margem superior. Occipício enegrecido e revestido de pilosidade dessa cor. Ocelos dois, afastados entre si e da margem ocular.

Tórax: Mesonoto castanho, mais escuro nas margens, esbranquiçado na região humeral; revestido de cerdosidade uniforme e enegrecida. Postnoto castanho. Pleuras castanhas, salvo o anepisternito que é mais escuro em cima e, nessa região, possui pequenas cerdas também enegrecidas.

Pernas: Coxas castanhas, a anterior mais clara. Trocânteres, fêmures e tíbias castanho-claras. Tíbia posterior enegrecida no ápice e aumentando progressivamente de calibre para a ponta. Tíbia anterior com um esporão, a mediana com dois, sendo que o externo tem a metade do comprimento do interno; a posterior

com dois esporões do mesmo tamanho. Basitarso anterior sensivelmente mais longo que a tibia correspondente.

Asa: Enfuscada, larga, as nervuras alcançando a margem exceto Cu_2 e An_1 . Balancim com a haste esbranquiçada e o capítulo enegrecido.

Abdomen com os tergitos castanho-escuros, exceto IV e V que possuem largas faixas basais que se estendem aos esternitos. Eternito III também com faixa basal amarelada.

Genitália (vide fig. 10): Basistilo pouco mais longo que largo, a margem súpero-interna provida de cerdas curtas, grossas e de ápice rombo. Dististilo pouco mais longo que o basistilo, cerdoso e com cinco ou seis cerdas curtas e grossas na porção basal e internamente; a porção do meio para o ápice glabra, muito delgada e terminada em longo espinho pontea-gudo. Mesosoma mais largo que alto e ovalado. Nonos tergitos curtos e largos, cerdosos e espiculosos.

Fêmea. — Desconhecida.

Tipos. — Holótipo macho; parátipos dois machos. Registrados sob os ns. 7587, 7588 e 7590.

Localidade tipo. — Brasil, Estado de São Paulo, Município de Salesópolis, Boracéia, XI.1947 (E. Rabello e L. Travassos F.º col.).

Gênero *Heteropterna* Skuse, 1888.

1888, *Heteropterna* Skuse, Proc. Linn. Soc. N. S. Wales, (2), 3: 1166.

Consideramos *Heteropterna* bom gênero, baseado, além dos característicos genéricos, no singular caráter encontrado por Edwards (1940) e que consiste numa depressão de formato triangular situada na base do postnoto. Temos quatro exemplares pertencentes a três espécies das quais uma é aqui descrita como nova. Damos abaixo uma chave para as espécies que ocorrem na região Neotropical.

Chave.

1. Quatro últimos segmentos flagelares brancos ou extensamente marcados de branco 2.
- Apenas os três ou dois últimos segmentos antenais marcados de branco 3.
2. Coxa mediana e posterior amareladas *major* Curran
- Coxa mediana e posterior enegrecidas; lobo externo do basistilo com a porção mediana mais larga mas não atingindo a metade do comprimento dessa estrutura *tetrалеuca* Edwards

3. Últimos três segmentos antenais enegrecidos; esternitos abdominais com II possuindo duas grandes manchas amareladas que ocupam quase toda a metade distal, III com quatro manchas grandes que quase o ocupam todo, deixando a porção preta restrita a uma estrutura em formato de cruz; lobo externo do basistilo engrossado no meio e tão largo quanto o comprimento dessa estrutura.... *trileuca* Edwards
 — Apenas o penúltimo segmento flagelar branco; esternitos abdominais com dois pequenos pontos brancos em II, enquanto que em IV existem quatro também pequenos e dessa cor; lobo externo do basistilo adelgado para o ápice e com a maior largura em menos da metade do comprimento dessa estrutura..... *abdominalis* n. sp.

Heteropterna tetraleuca Edwards, 1940.

1940, *Heteropterna tetraleuca* Edwards, Rev. Ent., 11: 446.

Um macho. Notamos que o flagelo possui o segmento XI marcado de branco dorsalmente e de preto ventralmente; XII e XIII são completamente brancos, enquanto que XIV ou último segmento flagelar possui um pouco de preto. O abdomen mostra uma faixa longitudinal completa no esternito III. Os demais caracteres concordam com a descrição original. Na figura 5 ilustramos a genitália do macho.

Proveniência do material estudado. — Brasil, Estado do Rio de Janeiro (T. Borgmeier col.).

Heteropterna trileuca Edwards, 1940.

1940, *Heteropterna trileuca* Edwards, Rev. Ent., 11: 447.

Temos um exemplar macho, que concorda com a descrição original. A genitália, que é ilustrada na figura 6, possui um dististilo interessante, pois é achatado e expandido para o ápice, do comprimento do basistilo, e de formato triangular.

Proveniência do material estudado. — Brasil, Estado do Rio de Janeiro, Distrito Federal, VIII.1948 (R. C. Shannon col.).

Heteropterna abdominalis, n. sp.

Comprimento do corpo 6 mm; asa 4,5 mm.

Mach o. — Cabeça enegrecida. Palpo com o segmento terminal arredondado e castanho, revestido de esparsa cerdasidade enegrecida. Fronte muito estreita. Antena com escapo e toro enegrecidos; flagelo achatado, os segmentos enegrecidos exceto o penúltimo que é quase totalmente branco.

Tórax castanho-escuro, exceto a região triangular do postnoto que é amarelada e as pleuras que são um pouco mais claras.

Pernas castanho-enegrecidas, salvo os tarsos dos pares mediano e posterior que possuem estreitos anéis apicais brancos; o quinto tarso mediano parece totalmente esbranquiçado.

Asa enegrecida, exceto as duas manchas brancas da costa que alcançam as nervuras radiais. Uma destas manchas está situada pouco além do meio, e a outra antes do ápice. Balancim com a haste esbranquiçada e o capítulo enegrecido.

Abdomen com os tergitos enegrecidos, exceto estreita faixa basal em IV até VI. Esternitos também enegrecidos, salvo duas pequenas manchas brancas em II, quatro em III, duas manchas basais e quase unidas em IV e V e estreita faixa basal em VI.

Genitália (vide fig. 7): Basistilo com os lobos fundidos e quase tão largos quanto longos; a porção interna munida de fortes espículas. Dististilo com o lobo externo quase do comprimento do basistilo, adelgado, arredondado, de ápice pontagudo e homogêneamente revestido de cerdas e espículas. Lobo interno delgado e pontagudo. Mesosoma arredondado e com uma saliência no ápice.

Fêmea. — Semelhante ao macho, exceto o abdomen cujos tergitos são enegrecidos. Os esternitos possuem faixas apicais enegrecidas, enquanto que o restante é castanho-enegrecido.

Tipos. — Holótipo macho, alótipo fêmea; registrados sob os ns. 7556 e 7557.

Localidade tipo. — Brasil, Estado do Rio de Janeiro, Distrito Federal, XI.1947 (Petr Wygodzinsky col.).

Em carta datada de 29 de Dezembro de 1947 o Dr. Petr Wygodzinsky nos dá as seguintes notas sobre os hábitos desta interessante espécie. Tais observações, aliás, vem corroborar outras feitas com espécies deste gênero. "Os exemplares foram apanhados em teias de aranha. Como acontece com muitos *Mycetophilidae*, achavam-se presos a um fio apenas, com as unhas anteriores. Parece-nos serem as unhas desses bichinhos semelhantes às das aranhas, o que aliás já foi observado em certos *Reduviidae* que vivem em teias de aracnídeos".

Gênero *Platyura* Meigen, 1804.

1804, *Platyura* Meigen, Illiger's Mag., 2: 264.

O gênero acima é representado, na região neotropical, por diversos subgêneros, destacando-se *Isoneuromyia* e *Proceroplatus* por possuírem o maior número de espécies. Descrevemos abaixo diversas espécies novas e constatamos outras interessantes sob o ponto de vista zoogeográfico.

Platyura (Plautyura) macilenta Arribáizaga, 1892.

1892, *Platyura macilenta* Arribáizaga, Bol. Ac. Nac. Córdoba, 12: 432.
 1902, Kertész, Cat. Dipt., Mus. Nac. Hun., 1: 52.
 1909, Johannsen, Genera Insectorum, 92: 23.
 1941, *Platyura (Plautyura) macilenta* Edwards, Rev. Ent., 12: 305.

A nossa série consta de cinco machos e uma fêmea. Descrevemos e ilustramos a genitália do macho na figura 8.

Genitália: Basistilo cerca de uma e meia vezes a maior largura, espiculoso e fortemente cerdoso. Dististilo mais longo que o basistilo, espiculoso, achatado, com um dente enegrecido no ápice. Mesosoma delgado e terminado em duas pontas. Nono tergito com os lobos pequenos e ovalados. Oitavo tergito (?) grande e subtriangular.

Proveniência do material estudado. — Brasil, Estado de S. Paulo, Atibaia, XI.1941 (M. Carrera col.); Estado de Goiás, Corumbá, XI.1945 (M. P. Barretto col.).

Platyura (Plautyura) shannoni, n. sp.

Comprimento do corpo 10 mm; asa 8 mm.

Fêmea. — Cabeça alaranjada. Ocelos envolvidos por mancha ovalada, enegrecida. Clípeo revestido de pilosidade amarelada. Antena com o flagelo achatado, escapo e toro amarelados; primeiros sete segmentos flagelares amarelados e com marcações enegrecidas no meio, os demais segmentos enegrecidos. Occipício revestido de pilosidade enegrecida.

Tórax: Mesonoto alaranjado, possuindo três estrias largas no meio e que alcançam o escutelo; revestimento formado por cerdosidade e pilosidade enegrecida e tufo de cerdas largas e negras sobre a raiz da asa. Escutelo alaranjado. Postnoto protuberante, enegrecido no meio. Pleuras amareladas.

Pernas: Coxas amareladas, com denso revestimento de pilosidade enegrecida. Trocânteres e fêmures amarelados. Tíbias e tarsos escuros. Tibia anterior com um esporão, a mediana com dois, sendo que um deles é pouco menor; a posterior com dois, o externo com a metade do comprimento do interno. Todos os esporões enegrecidos. Basitarso anterior cerca de um quarto mais longo que a tibia correspondente.

Asa de tonalidade amarelada, principalmente na porção anterior. Nervuras M_2 , M_3 , Cu_1 e An não alcançando a margem da asa. Balancim totalmente amarelado.

Abdomen amarelado, revestido de grosseira pilosidade enegrecida.

Macho. — Desconhecido.

Tipo. — Uma fêmea; registrada sob o n. 7417.

Localidade tipo. — Brasil, Estado do Rio de Janeiro, Tereópólis, V.1938 (R. C. Shannon col.).

A espécie acima descrita separa-se de *P. macilenta* e *P. salobrensis* pela marcação do mesonoto e abdomen e pelo balancim totalmente amarelado.

Platyura (Pyrtaula) alticola, n. sp.

Macho. — Cabeça: Clípeo e fronte amarelados; o clípeo com curta cerdosidade enegrecida. Palpo amarelado. Antena com o escapo e toro amarelados, o flagelo um pouco achatado; base do primeiro segmento flagelar amarelada, o restante bem como os demais segmentos enegrecidos. Occipício enegrecido, revestido de pruinossidade branca e cerdosidade enegrecida.

Tórax: Mesonoto amarelado, exceto três estrias largas, a primeira castanho-escura salvo no meio onde é enegrecida, as laterais enegrecidas e alcançando o escutelo; revestimento formado por fileiras de cerdas acrosticais e dorsocentrais enegrecidas deixando espaços glabros, os lados também com cerdas enegrecidas. Escutelo enegrecido, as cerdas marginais dessa cor. Postnoto castanho-enegrecido, pruinoso. Pleuras castanho-enegrecidas, salvo o esclerito espiracular, o pronoto e a propleura que são amarelados.

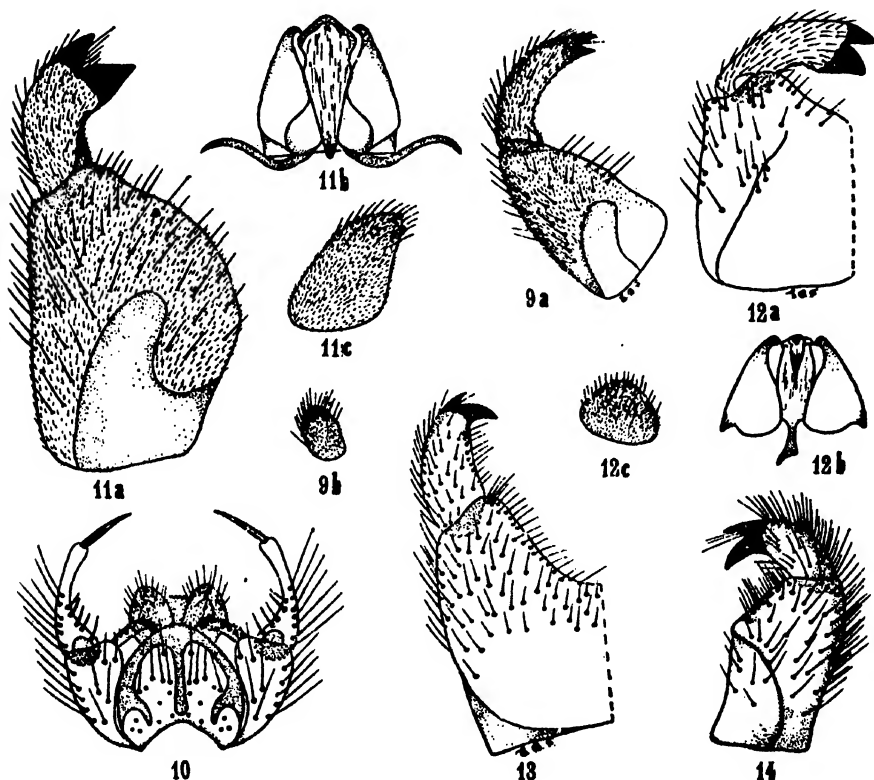
Pernas: Coxas: a anterior amarela-clara, a mediana castanho-enegrecida, salvo no ápice e internamente onde é amarelada; a posterior com a coloração da mediana, salvo a porção enegrecida que é mais extensa. Trocânteres amarelados, salvo internamente onde são castanho-escuros. Fêmures amarelados. Tíbias e tarsos bem como os esporões tibiais enegrecidos. Tíbias com as setulas irregularmente dispostas, as cerdas esparsas e curtas.

Asa levemente enfumaçada. Balancim amarelado, o capítulo um pouco mais escuro.

Abdomen alongado, enegrecido, com anéis apicais amarelados desde o segmento II até VII; tais anéis são mais largos nos segmentos III a VI.

Genitália (vide fig. 9): Basistilo com os lobos unidos na

base; quase duas vezes a maior largura, espiculoso e cerdoso. Dististilo pouco mais de dois terços do comprimento do basistilo, com revestimento deste e terminado por dois dentes enegrecidos, sendo que um é pouco maior que o outro. Mesosoma



Genitália do macho:

Fig. 8. *Platyura (Platyura) macilentata* Arribáizaga. — Fig. 9. *Platyura (Pyrtaula) alticola* n. sp.; a, basistilo e dististilo; b, nono tergito. — Fig. 10. *Ceroplatys (Euceroplatys) singularis* n. sp. — Fig. 11. *Platyura (Isoneuromyia) bicingulata* Edwards; a, basistilo e dististilo; b, mesosoma; c, nono tergito. — Fig. 12. *Platyura (Isoneuromyia) golanensis* n. sp.; a, basistilo e dististilo; b, mesosoma; c, nono tergito. — Fig. 13. *Platyura (Isoneuromyia) paulistana* n. sp. (Apenas basistilo e dististilo são desenhados). — Fig. 14. *Platyura (Isoneuromyia) atra* n. sp. (Apenas basistilo e dististilo são desenhados).

grande, cerdoso, mais largo basalmente, chanfrado em baixo e medianamente com estruturas esclerotizadas em cima. Nono tergito pequeno e arredondado.

Fêmea. — Semelhante ao macho. O abdômen com os tergitos providos de faixas mais estreitas; os esternitos são amarelados e mostram faixas basais enegrecidas.

Tipos. — Holótipo macho; alótipo fêmea; parátipos três machos. Registrados sob os números 7420 a 7423.

Localidade tipo. — Brasil, Estado de S. Paulo, Campos do Jordão (1600 mts. de altitude), XII.1945 (J. Lane col.); alótipo de Salesópolis, Boracéia, XI.1947 e I.1948 (Rabello, Travassos F.º e J. Lane col.).

Este subgênero é, pela primeira vez, constatado na América do Sul.

Platyura (Proceroplatus) catharinae Edwards, 1932

1932, *Platyura (Proceroplatus) catharinae* Edwards, Rev. Ent., 2: 139.

A nossa coleção consta de trinta e cinco exemplares, que concordam com dois espécimes comparados com o tipo e que nos foram enviados pelo Dr. P. Freeman do British Museum (Natural History).

Proveniência do material estudado. — Brasil, Estado de S. Paulo, Jaraguá, V.1946 (M. P. Barretto col.); Boracéia, VIII.1947 (Rabello, Travassos F.º e J. Lane col.); Cajuru, II.1947 (M. P. Barretto col.); Cantareira, VIII.1945 (J. Lane col.); Campos do Jordão, XII.1945 (J. Lane col.); Juquiá, IX.1945 (J. Lane col.); Estado do Rio de Janeiro, Itatiaia, VIII.1946 (M. P. Barretto col.); Angra dos Reis, XI.1945 (J. Lane col.); Estado de Goiás, Corumbá, XI.1945 (M. P. Barretto col.).

Subgênero *Isoneuromyia* Brunnetti, 1912

1912, *Isoneuromyia* Brunnetti, Fauna of British India, 55: 66.

Preparamos uma chave para as espécies que ocorrem na região Neotropical. Nesta chave não incluímos *P. elegantula* Williston pois não temos características suficientes.

Chave.

1. Balancim com o capítulo enegrecido 2.
- Balancim com o capítulo amarelado 7.
2. Tergito abdominal V todo ou parcialmente enegrecido 3.
- Tergito abdominal V completamente amarelado; fêmea com os três últimos tergitos abdominais amarelados; mesonoto castanho-escuro; asa hialina *argenteotomentosa* Kertész
3. Tergitos abdominais marcados de amarelo 4.
- Tergitos abdominais enegrecidos e com marcações prateadas *atra* n. sp.
4. Tergitos abdominais enegrecidos, mas ornamentados de marcações amareladas 5.
- Abdomen castanho-escuro no meio, amarelado dos lados; asa en-
foscada anteriormente *paulistana* n. sp.

5. Abdomen com marcações estreitas e amareladas na base, o quinto tergito bem como o restante enegrecido..... 6.
- Abdomen com a base dos tergitos II e IV extensamente em V e com a base de VI amarelados; mesonoto amarelo, com três estrias enegrecidas; asa enfuscada exceto no meio..... *goianensis* n. sp.
6. Asa alaranjada na margem anterior, o restante enfusado; mesonoto enegrecido, salvo um par de estrias longitudinais amarelas e mancha dessa cor sobre a raiz da asa..... *sesiiformis* Edwards
- Asa quase hialina nos dois terços basais, o terço distal e margem posterior escurecidos; mesonoto enegrecido.... *bicinctulata* Edwards
7. Mesonoto castanho-escuro e sem três estrias longitudinais..... 8.
- Mesonoto castanho ou alaranjado mas com três estrias mais escuras 9.
8. Abdomen castanho-escuro; pernas sem marcação enegrecida; cabeça castanha, a fronte amarelada; asa hialina..... *brevinervis* Shaw
- Abdomen com pruinoseidade prateada no tergito III (exceto na margem posterior), em todo V e VI, os tergitos I, II e IV pretos; coxas com marcação enegrecida, a metade basal do fêmur posterior também enegrecida; asa com o ápice levemente escurecido..... *griseofasciata* Edwards
9. Cabeça com o occipício preto, pelo menos até a altura dos ocelos. 10.
- Cabeça alaranjada, salvo mancha-enegrecida, ovalada e envolvendo os ocelos; abdomen castanho-alaranjado, sem marcação distinta; coxas e fêmures sem marcação preta; asa levemente tingida de amarelo, o ápice escuro principalmente em direção à nervura costal.... *xanthocera* Edwards
10. Cabeça preta, a face e clipeo castanhos; abdomen castanho-escuro, os tergitos II a V com os lados castanho-amarelados; fêmures marcados com preto; asa hialina..... *forcipata* Kertész
- Cabeça com o occipício preto até os ocelos, o restante amarelado; abdomen preto salvo o tergito III que é basalmente amarelado bem como todo o V; fêmur posterior com a metade basal preta; asa com tonalidade castanha, mais escura no ápice.... *flavofasciata* Edwards

Platyura (Isonneuromyia) bicinctulata Edwards, 1940

1940, *Platyura (Isonneuromyia) bicinctulata* Edwards, Rev. Ent., 11: 448.

Nossa série consta de treze exemplares, todos machos, capturados em diferentes localidades e datas. Notamos certa variação na marcação do mesonoto que pode ter as margens laterais com tegumento castanho. Um dos nossos exemplares é bem diferente nessa região, pois possui três estrias enegrecidas e o espaço entre elas é revestido de pruinoseidade branca. Aproveitamos essa ocasião para ilustrar, na figura 11, a genitália do macho que também é descrita.

Genitália: Basistilo fundido na base; uma e meia vezes a maior largura, espiculoso e cerdoso. Dististilo com pouco mais da metade do comprimento do basistilo, largo, achatado apicalmente onde termina em dois dentes negros e triangulares, sub-

iguais. Mesosoma como na figura. Nono tergito alongado e espiculoso, o ápice cerdoso.

Proveniência do material estudado. — Brasil, Estado de São Paulo, Cantareira, XI.1946 (Carrera e Barretto col.); IX.1946 (Carrera col.); Campos do Jordão, XII.1945 (J. Lane col.); Estado do Rio de Janeiro, Itatiaia, Maromba, IX.1946 (M. P. Barretto col.).

Platyura (Isoneuromyia) argenteotomentosa
Kertész, 1909

1909, *Platyura argenteotomentosa* Kertész, An. Mus. Nat. Hun., 7: 138.
1940, *Platyura (Isoneuromyia) argenteotomentosa* Edwards, Rev. Ent., 11: 443.

Temos duas fêmeas, que concordam em geral com a descrição original, salvo os palpos que são enegrecidos e as asas enfuscadas de castanho, principalmente na região costal.

Proveniência do material estudado. — Brasil, Estado do Rio de Janeiro, Distrito Federal, IV.1938 (R. C. Shannon col.); Itatiaia, II.1941 (R. C. Shannon col.).

Platyura (Isoneuromyia) goianensis, n. sp.

Comprimento do corpo 7 mm; asa 5 mm.

Machos. — Cabeça: Partes bucais bem como o palpo amareladas. Clípeo amarelado. A região desde a inserção das antenas até os ocelos com pruinose prateada. Os três ocelos com os laterais grandes, o mediano menor, afastados da margem ocular. Antena com o escapo, toro e porção inferior do primeiro segmento flagelar mais claros, a superior bem como o restante do flagelo enegrecidas; segmentos flagelares fortemente achatados. Occipício enegrecido e revestido de pilosidade enegrecida.

Tórax: Mesonoto amarelo, com pruinose branca, no meio possuindo três estrias enegrecidas que se fundem posteriormente; revestimento formado por pilosidade homogênea e cerdosidade enegrecida. Escutelo mais escuro no meio, amarelado nos lados. Postnoto muito curto, glabro mas com pruinose prateada. Pleuras e pteropleurito enegrecidos, mas revestidos de pruinose prateada.

Pernas: Coxas amareladas, a pilosidade enegrecida. Trocânteres mais escuros. Fêmures amarelados, salvo o posterior que

é enegrecido na base e ápice em grande extensão. Tíbias e tarsos escuros, esporões tibiais externos com menos da metade do comprimento dos internos tanto no par mediano como no posterior; cerdas tibiais curtas.

Asa enfuscada salvo no meio onde é mais clara. *R-m* bem curta; M_1 , M_2 e M_3 não alcançando a margem da asa, bem como Cu_2 e Cu_1 que são distintas mas também não alcançam a margem da asa. Balancim com a haste amarelada e o capítulo enegrecido.

Abdomen enegrecido, salvo a base dos segmentos II e IV e extensas porções dos segmentos V e base de VI que são amarelados; revestimento formado por grosseira pilosidade negra.

Genitália (vide fig. 12): Basistilo um quarto mais longo que largo, revestido de espiculosidade e cerdoso na margem superior. Dististilo com dois terços do comprimento do basistilo, densamente revestido de cerdosidade, encurvado no meio e terminado em dois bicos enegrecidos. Mesosoma como na fig. 12. Nono tergito com os lobos mais largos que longos.

Fêmea. — Desconhecida.

Tipo. — Holótipo macho. Registrado sob o n. 7419.

Localidade tipo. — Brasil, Estado de Goiás, Corumbá, XI.1945 (M. P. Barretto col.).

Platyura (Isoneuromyia) paulistana, n. sp.

Comprimento do corpo 8 mm; asa 5 mm.

Macho. — Cabeça: Partes bucais e palpo amareladas. Clípeo castanho-amarelado, revestido de cerdosidade enegrecida. Fronte castanho-amarelada. Região entre as antenas e ocelos com pruinosidade prateada. Antena com o escapo e toro castanho-enegrecidos; o flagelo achatado e enegrecido. Ocelos três, os laterais maiores, todos afastados da margem ocular. Occipício enegrecido, sem brilho e revestido de cerdosidade enegrecida.

Tórax: Mesonoto castanho-claro exceto três estrias quase unidas, pouco distintas, largas e enegrecidas; revestimento formado por cerdosidade castanho-escuro. Escutelo castanho, as margens mais claras. Postnoto castanho escuro mas com pruinosidade prateada. Pleuras com os escleritos com porções mais claras, principalmente no pteropleurito.

Pernas: Coxas amareladas, os ápices escurecidos, principal-

mente na mediana e posterior externamente. Trocânteres enegrecidos. Fêmures amarelados, o posterior com a metade basal enegrecida. Tibias e tarsos escuros, a anterior com um esporão, a mediana com dois, o esporão externo com um terço do comprimento do interno, a posterior também com dois esporões sendo que o externo tem a metade do comprimento do interno.

Asa enfuscada, principalmente na porção anterior. Nervuras M_2 , M_3 , Cu_1 , Cu_2 e An não alcançando a margem da asa. Balancim com a haste amarelada e o capítulo enegrecido.

Abdomen castanho-escuro no meio, amarelado nos lados, a marcação indistinta; revestido por grosseira pilosidade enegrecida.

Genitália (vide fig. 13): Basistilo com os lobos fundidos, cerca de duas vezes a maior largura. Dististilo terminado em dois dentes negros, o externo delgado e encurvado, o interno subtriangular; no meio e internamente existem cerdas longas e em ângulo reto, na parte externa é densamente piloso. Mesosoma e nono tergito (impossíveis de se descrever).

Fêmea. — Desconhecida.

Tipo. — Um macho; registrado sob o n. 7418.

Localidade tipo. — Brasil, Estado de S. Paulo, Osasco, XI.1940 (J. Lane col.).

Platyura (Isoneuromyia) atra, n. sp.

Comprimento do corpo 11 mm; asa 8 mm.

Mach o. — Cabeça enegrecida. Palpo e clipeo revestidos de pilosidade enegrecida. Fronte larga. Antena com escapo e toro castanho-escuros, o flagelo enegrecido e achatado. Ocelos três, os laterais muito maiores que o mediano, todos afastados uns dos outros e da margem ocular. Occipício revestido de pilosidade enegrecida.

Tórax enegrecido. Mesonoto com as margens e três estrias longitudinais indistintas formadas por pruinossidade prateada; revestimento homogêneo de curta pilosidade enegrecida, salvo acima da raiz da asa onde é longa e densa. Escutelo com pilosidade bastante longa e enegrecida. Postnoto e pleuras com pruinossidade prateada.

Pernas: Coxa anterior enegrecida, salvo a porção anterior distal interna e externa que são amareladas; coxa mediana e

posterior enegrecidas. Trocânteres enegrecidos. Fêmures anterior e mediano amarelados, salvo na base e ápice onde são enegrecidos; fêmur posterior com toda a superfície dorsal enegrecida e porção ventral amarelada, salvo grande mancha basal que também é enegrecida. Tibia e tarsos enegrecidos. Tibia anterior com um esporão, a mediana e a posterior com dois, sendo que o externo tem cerca da metade do comprimento do interno.

Asa amarelada salvo o terço distal que é enegrecido. As nervuras M_2 , M_3 , Cu_1 e Cu_2 bem como An não alcançando a margem da asa. Balancim com a haste amarelada e o capítulo enegrecido.

Abdomen com os tergitos enegrecidos, salvo a seguinte marcação de pruinossidade prateada: metade basal de III, grandes manchas baso laterais em IV e V a VII com toda a porção dorsal.

Genitália (vide fig. 14): Basistilo cerca de uma e meia vezes a largura basal. Dististilo com pouco mais da metade do comprimento do basistilo, terminado em dois dentes negros, sendo que um é pouco menor que o outro. Mesosoma (impossível de se descrever). Nono tergito com os lobos sub-triangulares e quase tão largos quanto altos.

Fêmea. — Desconhecida.

Tipo. — Holótipo macho; registrado sob o n. 7689.

Localidade tipo. — Brasil, Estado de S. Paulo, Município de Salesópolis, Boracéia, IV.1948 (E. X. Rabello col.).

Platyura (Isonneuromyia) xanthocera Edwards, 1931

1931, *Platyura (Isonneuromyia) xanthocera* Edwards, An. Mag. N. H., 7 (10): 256.

Temos uma fêmea, proveniente de Goiás, Anápolis, X.1936 (G. B. Fairchild col.) que concorda com a descrição original salvo o fêmur posterior que é todo amarelado e não possui a área enegrecida.

Agradecimentos.

Aproveitamos a ocasião para agradecer aos Drs. M. P. Barretto, Petr Wygodzinsky, M. Carrera, E. X. Rabello e T. Borgmeier pelo material que colocaram à nossa disposição. Também agradecemos as notas e sugestões dos Drs. Petr Wygodzinsky e Paul Freeman. Este trabalho é ilustrado pelo Sr. E. B. Ferraz.

Resumo.

Estudando uma coleção de 88 exemplares pertencentes à esta subfamília, o autor constata nove espécies já descritas, descreve treze novas espécies e dá chaves para as espécies dos subgêneros *Ceroplatus* e *Isoneuromyia* e gênero *Heteropterna*.

Summary.

The study of a collection of 88 specimens belonging to this subfamily, showed nine previously known species and thirteen new ones. Keys for the subgenera *Ceroplatus* and *Isoneuromyia* and the genus *Heteropterna* are also included.

Einige Ameisen aus Argentinien (Hym. Formicidae).

Von T. Borgmeier, O. F. M., Rio de Janeiro.

(Mit 19 Abbildungen)

Herr Dr. Nikolaus Kusnezov, vom Instituto Miguel Lillo, Tucumán, hatte die Freundlichkeit, mir einen Teil seiner in Argentinien gesammelten Formiciden zur Bestimmung zu uebersenden. Dr. Kusnezov ist an erster Stelle an der Biologie und Oekologie der Ameisen interessiert. Er hat 20 Jahre in Zentralasien als Myrmekologe gearbeitet und oeffters im Zool. Anzeiger publiziert. Er ist also ein qualifizierter Sammler und Beobachter und es ist zu hoffen, dass er noch manch wertvolles Material zutage foerdern wird. Im Folgenden bespreche ich einen Teil seiner grossen Ausbeute.

Subfam. Dorylinae.

Eciton (s. str.) *vagans* Olivier, 1791

♂ ♀: Zapallar, Chaco, 18.VI.48. Resistencia, Chaco, 17.VI.48. Kusnezov leg.

Eciton (s. str.) *dulcius* Forel, 1912

Eciton (*Holopone*) *dulcius* For. v. *hirsutum* Santschi (1912, Rev. Suisse Zool. 20, p. 523; 1936, Rev. de Ent. 6, p. 402; ♂) (N o v. s y n.)

♂ ♀: El Tajamar, Tucumán, J. L. Sirlin leg. Jan. 1948. Villa Guazayán, Santiago del Estero, G. Budin leg. Feb. 1948.

Unter dem Material von Guazayán befanden sich Soldaten mit langen Mandibeln. Sie kommen also doch in Argentinien vor, entgegen der brieflich vor Jahren geaeusserten Meinung Bruch's, der annahm, dass die var. *jujuyense* For. unter anderem durch das Fehlen der Soldaten charakterisiert sei. Dass die var. *jujuyense* nicht haltbar ist, habe ich bereits 1939 gezeigt (Rev. de Ent. 10, p. 406). Es ist mir damals entgangen, dass Santschi 1936 seine *hirsutum* ♂ als Varietaet zu *dulcius* stellte und die var. *jujuyense* als Synonym betrachtete. Ich besitze Maennchen von *dulcius* aus Argentinien und Brasilien und bin ueberzeugt, dass auch diese Varietaet nicht haltbar ist.

Eciton (*Labidus*) *coecum* Latreille, 1802

♂ ♀: Dique La Ciénaga, Jujuy, 21.I.48. Las Lomitas, Formosa, 29.VI.48. Roque Saenz Peña, Chaco, 21.VI.48. Zapal-

lar, Chaco, 19.VI.48. Puente San Hilario, Formosa, 21.VI.48. Kusnezov leg.

Die Varietaeten und Unterarten von *coecum* beduerfen notwending der Revision, wie ich bereits 1936 hervorhob (Arch. Inst. Biol. Veget. 3, pp. 57-58).

Eciton (Labidus) praedator F. Smith, 1858

♂: Colonia Benítez, Chaco, 14.VI.48 (Kusnezov leg.), 15.VI.48 (Golbach leg.). El Porteño, Formosa, Budin leg. Zapallar, Chaco, 19.VI.48 (Kusnezov). Puente San Hilario, Formosa, 21.VI.48 (Kusnezov). Paso de la Patria, Corrientes, 16.VI.48 (Kusnezov).

Eciton (Nomamyrmex) crassicorne F. Smith, 1855

♂: Ing. Juárez, Formosa, 1.VII.48 (Kusnezov).

Die Untergattung *Nomamyrmex* wurde von mir 1936 aufgestellt (Arch. Inst. Biol. Veget. 3, p. 55). Die von Santschi aufgestellten Varietaeten und Unterarten von *crassicorne* muessen neu untersucht werden. Santschi war ein Splitterer und hat die myrmekologische Literatur mit einer Unmenge von Varietaetsnamen belastet, deren Klaerung noch viel Arbeit erfordern wird.

Eciton (Neivamyrmex) laevigatum, n. sp. ♂

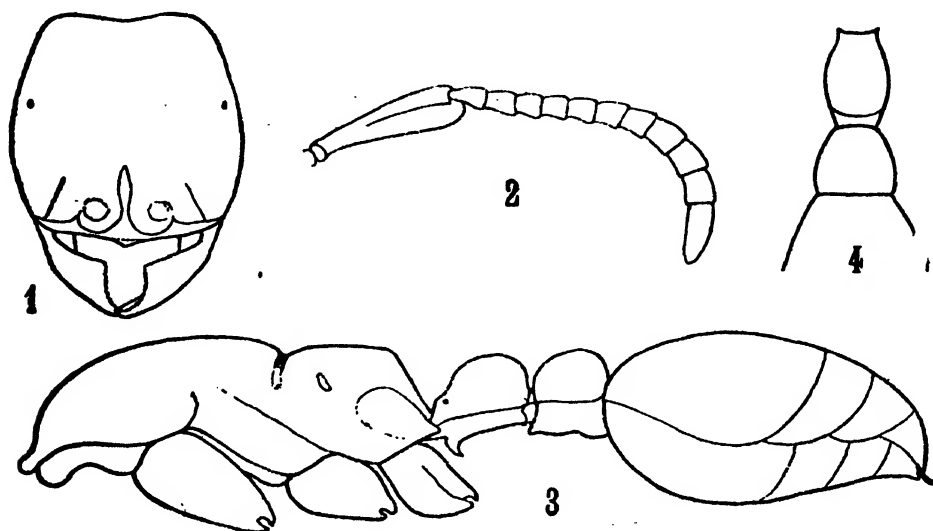
(Fig. 1-4)

Erinnert durch die schlanke Gestalt an *goeldii* For., ist aber durch die Form des Kopfes, des Thorax und des Stielchens, sowie durch die glatte Basalflaeche des Epinotums leicht zu unterscheiden.

♂ maior. — Kopf (ohne Mandibeln) etwas laenger als breit (Fig. 1), hinten etwas schmaeler als vorn, Hinterrand leicht konkav. Augen ozellenfoermig und undeutlich, durch einen kleinen gelben Pigmentfleck repraesentiert. Fuehlergruben seitlich mit schraegem Kiel. Stirnleisten kurz, S-foermig, unter sich stark genaehert, vor den Fuehlergruben nicht fortgesetzt. Vorderrand des Klypeus in der Mitte mit kurzem lamellenartigem spitzen Vorsprung. Mandibeln stark gebogen, ohne Basalzahn am Oberrand, Kaurand fein gezaehnt, einige Zaehnchen auch subapikal am Basalrand. Fuehlerschaft bis zu den Augen reichend. Geisselglied 1-4 (Fig. 2) allmaechlich verkuerzt und etwas verdickt, die uebrigen

allmaehlich verlaengert; Endglied etwa so lang wie die beiden vorhergehenden zusammen.

Thorax schlank. Promesonotum (Fig. 3) im Profil leicht konvex. Epinotalsutur tief, mit kurzen Laengsrunzeln. Epinotum nicht gerandet; Basalflaeche und abschuessige Flaeche



Eciton (Nervamyrme) laevigatum n. sp.
Fig. 1. Kopf des groesseren Arbeiters, Dorsalansicht. — Fig. 2. Fuehler (nach Balsampraeparat). — Fig. 3. Koerper im Profil. — Fig. 4. Stielchen von oben. (Borgmeier del.)
Carebarella bicolor Emery

ungefaehr gleichlang, einen stumpfen Winkel bildend. Petiolus ventral vorn mit gekruemmtem Zahn, etwas laenger als hoch, deutlich laenger als breit, Knoten im Profil konvex, von oben gesehen (Fig. 4) mit konvexen Seiten; Postpetiolus hoeher als lang, bei Dorsalansicht etwa so breit wie lang, vorn schmaeler als hinten, mit konvexen Seiten.

Koerper ueberall stark poliert glaenzend, auch die Basalflaeche des Epinotums; nur die Seiten des Epinotums, die Promesopleuralsutur und die Seiten des Petiolus fein genetzt. Mandibeln und Schaft punktiert. Punktierung des Kopfes fein und zerstreut. Abstehende Behaarung kurz und zerstreut, einige laengere Haare an Stielchen und Hinterleib.

Faerbung roetlichgelb.

Laenge: ♂ maior 4,5 mm, minor circa 3 mm. Wahrscheinlich existieren noch kleinere Individuen.

Typen: 14 Exemplare von Roque Saenz Peña, Chaco, N. Kusnezov leg. 15.VI.1948.

Eciton (Neivamyrmex) goeldii Forel, 1901

Roque Saenz Peña, Chaco, 12.VI.48 (Kusnezov), 1 ♂.

Bisher nur von Bahia und Goiás bekannt. Eine Abbildung des Kopfes gab ich 1939 (Fig. 5).

Eciton (Neivamyrmex) strobili Mayr, 1868

♂: Castelar, Buenos Aires, X.1947 (Kusnezov).

♀: Sala, Tucumán, I.48 (Kusnezov). Fronterita, Tucumán, 12.III.48 (Arcs). Anta Muerta, Tucumán, 1.X.48 (A. de la Sota). Zapallar, Chaco, 19.VI.48, 1 ♀ zusammen mit *E. prae-dator* (Kusnezov leg.).

Eciton (Neivamyrmex) pseudops Forel, 1909

♀: La Reducción, Tucumán, 28.III.48. Mista, Tucumán, 3.VI.48. Kusnezov leg.

Eciton (Neivamyrmex) bohlsi Emery, 1896

Eciton (Acamatus) diversinode Borgmeier, 1933, Arch. Esc. Sup. Agric. Med. Vet., Rio de Janeiro, vol. 10, p. 163, ♀. (Nov. syn.)

♀: Salta, 8 km hácia San Lorenzo, 26.I.48. Rio Hondo, Santiago del Estero, 15.II.48. Quebrada Caíno, Tucumán, 8.IV.48: (Kusnezov leg.)

Die Typen dieser Art sind von Paraguay. Erneutes Studium von Typenmaterial aus der Sammlung Emery's und des jetzt erhaltenen Materials von Argentinien ueberzeugte mich, dass die von mir aus Goiás beschriebene *diversinode* mit *bohlsi* identisch ist. Mein Irrtum erklart sich z. T. durch die schlechte Praeparierung der vorliegenden Cotypen (kleine Arbeiter). Emery war ein guter Systematiker, aber ein schlechter Praeparator.

Eciton (Neivamyrmex) illigeri Shuckard, 1840

1 ♂: Villa Benjamin Aráoz, Tucumán, 13.I.48 (Budin leg.)

Der Typus dieser Art stammt von Minas, Brasilien.

Eciton (Neivamyrmex) swainsoni Shuckard, 1840

2 ♂: El Tajamar, Tucumán, J. L. Sirlin leg. I.48.

Beschrieben von "Brasilien", Swainson leg.

Eciton (Neivamyrmex) romandi Shuckard, 1840

♂: El Tajamar, Tucumán, 1.48 (Kusnezov). Tucumán, am Licht 10.II.48 (Kusnezov). Villa P. Monti, Tucumán, 1.48 (Golbach leg.).

Subfam. Ponerinae.

Termitopone marginata (Roger, 1861)

Roque Saenz Peña, Chaco, 12.VI.48 (Kusnezov).

Subfam. Myrmicinae.

Carebarella Emery, 1905

Emery, 1905, Boll. Soc. Ent. Ital. 37, p. 137. — Eidmann, 1937, Arb. physiol. angew. Ent. Berlin-Dahlem, vol. 3, p. 43-44 (Biol.). — Borgmeier, 1937, Arch. Inst. Biol. Veget., Rio de Janeiro, vol. 3, p. 235.

Diese interessante Gattung wurde auf Weibchen von Argentinien und Brasilien gegrundet. Ein Maennchen von Peru wurde von Emery mit Vorbehalt hierher gerechnet, gehoert aber wohl einer anderen Gattung an, wie ich aus den Angaben ueber das Geaeder schliesse. Die Arbeiter blieben lange Zeit unbekannt. Eidmann entdeckte sie 1933 im Staate Rio de Janeiro und stellte deren Beschreibung durch Menozzi in Aussicht in einer Arbeit, deren Titel er sogar in seiner "Literatur" angibt und die in der "Rev. de Ent." erscheinen sollte. Ich habe aber das betreffende Manuskript nie erhalten und die Arbeit ist bis heute nirgends erschienen¹, wie ich aus dem Zool. Record (bis 1946) ersehe, sodass die Arbeiter in Wirklichkeit nie beschrieben wurden. Eidmann gibt allerdings 2 relativ gute Abbildungen.

In einer fruere Arbeit (1937) habe ich den Fluegel des Weibchens von *bicolor* subsp. *punctato-rugosa* Em. abgebildet (Foto) und zugleich eine neue Untergattung errichtet, die ich *Carebarelloides* nannte und die auf Weibchen und Maennchen von Espirito Santo gegrundet wurde. Diese Untergattung unterscheidet sich von *Carebarella* s. str. durch das Fehlen der Diskoidalzelle in beiden Geschlechtern, sowie durch den gezahnten Klypeus im weiblichen Geschlecht.

Unter dem von Dr. Kusnezov eingesandten Material befanden sich alle 3 Kasten aus demselben Nest. Das ermoglicht eine neue

¹) Dies ist umsomehr zu bedauern, weil in der Arbeit Eidmann's (1937) einige neue Arten erwahnt werden, welche von Menozzi aufgestellt, aber bisher nicht beschrieben wurden. Eidmann macht zwar einige deskriptive Angaben, aber es fehlt der Hinweis auf die Unterschiede von verwandten Arten, was nach dem 31. Dez. 1930 zur Gueltigkeit von neuen zoologischen Namen erforderlich ist. Die Namen sind also vorlaeufig als *nomina nuda* zu betrachten.

Praezisierung der Gattungsmerkmale und die erstmalige Beschreibung des Arbeiters und des bisher unbekannten Maennchens.

♀. — Im Vergleich zum Weibchen sehr klein, monomorph. Fuehler 10-gliedrig. Keule 2-gliedrig, laenger als der Rest der Geissel. (Man kann die Keule aber auch als 3-gliedrig ansehen). Augen klein. Mandibeln gezaehnt. Promesonotum konvex, nach hinten verschmaelert.

Epinotalsutur tief. Epinotum hinten unbewehrf. Petiolus gestielt. Beide Knoten gerundet. Hinterleib flach, vorn abgestutzt.

♀. — Ungefachr 5 mal so lang wie der Arbeiter. Klypeus unbewehrt (*Carebarella* s. str.) oder gezaehnt (Subg. *Carebarelloides*). Fuehler 10-gliedrig. Kopf breit, die Stirnleisten weit unter sich entfernt. Epinotum hinten unbewehrt. Stielchen wie beim Arbeiter. Hinterleib breit und flach. Beine kurz. Fluegel sehr lang, mit einer geschlossenen Cubitalzelle und einer Discoidalzelle; letztere ist viereckig, weil die offene Cubitalzelle basal verlaengert ist. Bei der Untergattung *Carebarelloides* ist die Discoidalzelle offen.

♂. — Merkleich kleiner als das Weibchen. Kopf sehr klein, hinten gerundet. Augen gross, konvex. Mandibeln verkuemmert. Ozellendreieck erhaben. Fuehler fadenfoermig, 10-gliedrig durch Verwachsung des 2. und 3. Geisselgliedes (zuweilen aber noch 11-gliedrig); 2. Geisselglied rundlich. Petiolus mit niedrigem Knoten. Postpetiolus glockenfoermig. Beine schlank, letztes Tarsenglied aller Beine verdickt. Fluegel wie beim Weibchen, aber Discoidalzelle, wenn vorhanden (*Carebarella* s. str.), viereckig; bei der Untergattung *Carebarelloides* offen.

Genotypus: *C. bicolor* Emery, 1905 (Misiones, Argentinien).

Typus der Untergattung *Carebarelloides*: *C. (C.) condei* Borgm. 1937 (Espirito Santo, Brasilien).

Die Gattung ist sehr charakteristisch durch den Groessendimorphismus der Weibchen und Arbeiter, die 10-gliedrigen Fuehler (auch beim Maennchen, was bei Myrmicinen nur selten vorkommt; vgl. Emery, Gen. Ins. Myrmicinae, 1922, p. 174), das eigentuemliche Fluegelgeaeder und die merkwuerdig verdickten Endglieder aller Tarsen im maennlichen Geschlecht.

Ueber die Biologie machte Eidmann (1936) interessante Angaben. Alle drei von ihm beobachteten Kolonien befanden sich im Nestbereich von Termiten und anderen Ameisen.

Carebarella (s. str.) *bicolor* Emery, 1905

(Fig. 5-15)

Emery, 1905, Boll. Soc. Ent. Ital. vol. 37, p. 137, ♀ (von Misiones).

♀ (unbeschrieben). — Kopf (ohne Mandibeln) so breit wie an den Seiten lang (25:25), vorn etwas verschmaelert (20),

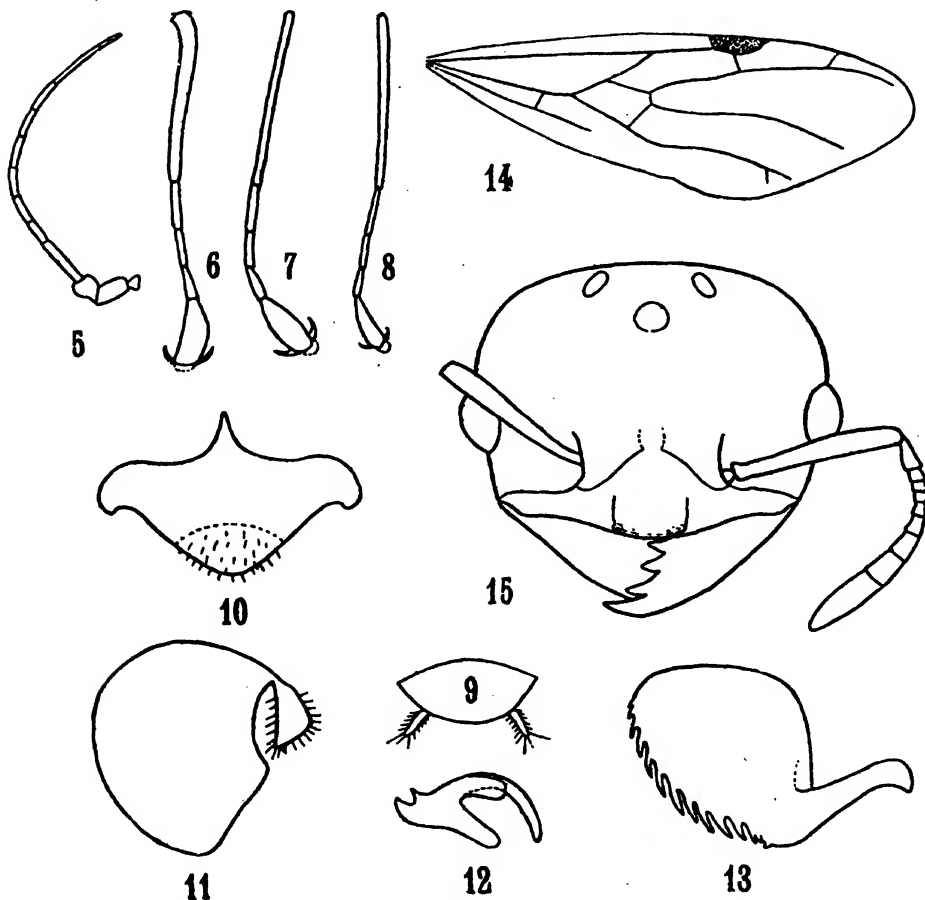


Fig. 5. Fuchler des Maennchens (Balsampraeparat). — Fig. 6. Vordertarsus ♂. — Fig. 7. Mitteltarsus ♂. — Fig. 8. Hintertarsus ♂. — Fig. 9. Penicilli am 10. Tergit des ♂. — Fig. 10. Subgenitalplatte des ♂. — Fig. 11. Rechte Haelfte der Basalkapsel der Genitalien des ♂ und rechter Stipes, von rechts gesehen. — Fig. 12. Rechte Voelselle des ♂, von innen (links) gesehen. — Fig. 13. Innere Paramere, rechte Haelfte, von innen (links) gesehen. — Fig. 14. Fluegel des ♂. — Fig. 15. Kopf des Weibchens, Dorsalansicht (der Fuchler wurde nach Balsampraeparat gezeichnet). (Borgmeier del.)

Seiten leicht konvex, Hinterecken abgerundet. Hinterrand gerade. Augen klein, etwas ueber dem 1. Drittel der Kopfseiten gelegen. Klypeus in der Mitte erhoehrt; diese Erhoehung ist an den Seiten gekielt und hat einen scharfen, sehr leicht ausgebuchteten Vorderrand und ist hinter diesem Vorderrand etwas eingedrueckt.

Mandibeln mit vier Zaehnen am Kaurand. Stirnleiste S-foermig, kurz. Fuehlerschaft etwa bis zum 3. Viertel der Kopfseiten reichend. Erstes Geisselglied etwa gleich den drei folgenden zusammen, 2-7 stark quer, 8 zweimal so lang wie 7. Keule (8.-9. Geisselglied) laenger als der Rest der Geissel. Pronotum stark konvex, von oben gesehen etwa so lang wie breit, nach hinten stark verengt. Epinotalsutur tief; auf dieser Hoehe ist der Thorax stark eingeschnuert. Epinotum nicht bewehrt; im Profil geht die leicht konvexe Basalflaeche in konvexem Bogen in die kuerzere abschuessige Flaeche ueber. (Eidmann zeichnet in seiner Fig. 2b fuer *punctato-rugosa* einen stumpfen Winkel, der bei meinen Exemplaren von *bicolor* fehlt). Die abschuessige Flaeche ist in der Mitte schwach eingedruickt und weist unten einige Querstreifen auf. Petiolus kurz gestielt, ventral nicht gezaehnt; Knoten hoch, im Profil konvex, vorn steil abfallend, bei Dorsalansicht etwa doppelt so breit wie lang. Postpetiolus etwas breiter als der Petiolus, der eigentliche Knoten aber von derselben Breite wie der des Petiolus; hinter dem Knoten befinden sich einige Querrunzeln. Hinterleib dorsoventral stark abgeflacht, vorn abgestutzt und etwas ausgebuchtet. 1. Ventrit vorn etwas ausgehoeht. Stachel lang. Der ganze Koerper glatt, mit starkem Glanz. Abstehende Behaarung zerstreut und auffallend lang, kuerzer an den Fuehlern und an den Beinen. Faerbung rotgelb, Beine und Fuehler blasser. Hinterleib schwarzbraun bis schwarz, 1. Ventrit vorn roetlichgelb.

♂ (unbeschrieben). — Laenge 5,8 mm, Vorderfluegel 7,2 mm. Form des Kopfes wie bei *condei* Borgm. (1937, p. 237, Fig. 20), die Breite (die Augen eingeschlossen) verhaelt sich zur Laenge in der Mitte (bis zum Vorderrand des Klypeus) wie 22:17. Ozellendreieck erhaben. Ozellen um ihren Durchmesser voneinander entfernt; der Abstand der seitlichen Ozellen vom Augenrand ist etwa doppelt so gross. Augen gross und stark konvex, ihr Vorderrand sehr nahe der Mandibelinserktion. Clypeus erhoeht, subquadratisch, Vorderrand leicht konvex; hinten ist der Klypeus durch eine nach vorn konkave Furche begrenzt, welche jederseits bis zur Stirnleiste reicht; im Profil ist der Klypeus konvex. Stirn genetzt punktiert, vor den Ozellen befinden sich einige Laengstreifen. Mandibeln rudimentaer, apikal zugespitzt. Fuehler (Fig. 5, nach Balsampraeparat gezeichnet) fadenfoermig, gewoehnlich 10-gliedrig, zuweilen 11-gliedrig (zuweilen bei demselben Individuum auf der einen Seite 10-gliedrig, auf der andern 11-gliedrig); wenn 10-gliedrig, zeigt das 2. Geisselglied gewoehnlich

in der Mitte eine rudimentaere Naht. Mesonotum stark konvex. Scutellum ein wenig breiter als in der Mitte lang, an den Seiten dicht laengsgestreift. Epinotum ganz oben und ganz unten quergestreift; Epipleuren mit senkrechten Streifen. Stielchen ungefaehr wie bei *condei* (Borgmeier, 1937, p. 237, Fig. 17), aber beide Knoten im Profil weniger konvex; der Knoten des Petiolus bildet oben fast eine Querkante. Postpetiolus breiter als der Petiolus. Hinterleib breit und flach. Ueber den Genitalien befinden sich hinten 2 behaarte Anhaenge (Penicilli) am Hinterrand einer haeutigen halbkreisfoermigen Platte (10. Tergit). Subgenitalplatte (Fig. 10) hinten eng abgerundet und daselbst behaart. Basalkapsel der Genitalien gross. Stipes wie in Fig. 11. Volsellen (Fig. 12) zangenfoermig, mit einem laengeren oberen und einem kuerzeren unterem Arm; der obere Arm ist duenner und gebogen. Innere Parameren am Hinterrand gezaehnt (siehe Fig. 13). Beine sehr schlank und duenn. Alle Tarsen lang, das letzte Glied verdickt, am staerksten beim Vordertarsus, am schwaechesten beim Hintertarsus. Metatarsus I basal etwas gekruemmt. Fluegel 7,2 mm lang, gebraeunt (aber nicht so stark wie beim Weibchen). Geaeder wie in Figur 14. Discoidalzelle fuenfeckig; der nervus recurrens muendet in die Cubitalader. Koerper glaenzend. Farbe braunschwarz, Fuehler und Beine heller, rostbraun bis gelblich; Segmentgrenzen des Hinterleibs roetlich, ebenso die Fluegelinsertion.

♀. — Laenge 10 mm. Kopf wie in Fig. 15. Gegenseitiger Abstand der Stirnleisten gross. Klypeus vorn konvex, Mittelteil etwas erhaben, glatt, an den Seiten mit einigen Laengsstreifen, aber nicht deutlich gekielt; Vorderrand scharf. Mandibeln mit 4 Zaehnen (nicht 5, wie E m e r y schreibt). Schaft die Augen ueberragend. Geisselglied so lang wie breit (nach Balsampraeparat; E m e r y schreibt: breiter als lang), Geisselglieder 3-4 quer; 5. Geisselglied und die folgenden allmaechlich verlaengert. Keule (4-gliedrig?) undeutlich. Kopf fein laengsgestreift; die Streifen konvergieren in der Mitte zum vorderen Ocellus; an den Seiten divergieren sie zu den Hinterecken, umkreisen dieselben und gehen an den Kopfseiten nach vorn. Fuehlergruben konzentrisch gestreift. Die Stirnstreifen sind von haartragenden feinen Punkten unterbrochen. Trotz der Skulptur ist der Kopf ziemlich stark glaenzend. Mesonotum mit Laengsstreifen. Abschuessige Flaeche des Epinotums quergestreift. Knoten des Petiolus schwach zweilappig; hinter dem Knoten ist der Petiolus quergestreift; Form ungefaehr wie bei *condei* (Borgmeier, 1937, Fig. 18). Den stumpfen

ventralen Zahn am Postpetiolus, den Emery erwahnt, kann ich nicht entdecken; wahrscheinlich wurde er durch den Ventralrand bei Profilansicht nur vorgetauscht. Fluegel 13 mm lang, stark gebraeunt (staerker als beim Maennchen), Geader schwarz, genau wie in der Fig. 18 bei Emery (1905, p. 137); die Radialader und die Cubitalader vereinigen sich an der hinteren oberen Ecke der viereckigen Discoidalzelle, d. h. an der Muendung des nervus recurrens. (In der von mir 1937 veroeffentlichten Fotografie des Fluegels von *punctato-rugosa* vereinigen sich die beiden Adern etwas hinter der Muendung des nervus recurrens, wohl eine Variationserscheinung). Hinterleib stark glaenzend, fein punktiert. Vorderkoerper gelbrot, Hinterleib schwarz; auch das Postskutellum schwarz; Postpetiolus geschwaerzt. Abstehende Behaarung reichlich, duenn und lang.

Beschrieben nach 14 Arbeitern, 6 Maennchen und 2 gefluegelten Weibchen von San Ramón, Tucumán, García leg. IV. 1948.

Anmerkung. — Die Unterart *punctato-rugosa* wurde von Emery (1905, p. 139, Anm. 1) mit folgenden Worten charakterisiert: "Alcune ♀ alate di Rio de Janeiro, nella mia collezione, differiscono dalla forma precedente per la scultura del capo e del torace, in cui le rughe sono ineguali, le une continue e ondulate, le altre interrotte dai punti piligeri che sono molto più grossi; scultura che ricorda quella della *Voltenhovia punctato-striata*. Ali brune, con venatura picea". Ich besitze Material von der Typenlokalitaet und von São Paulo (Peruhybé), ueber das ich bereits berichtet habe (1937, p. 235) und das der Beschreibung Emery's entspricht. Die von Emery angegebenen Unterschiede scheinen mir aber zu gering, um darauf eine Unterart zu gruenden. Es ist aber moeglich, dass die Arbeiter und Maennchen, die mir nicht vorliegen, weitere Unterschiede zeigen. Man versteht uebrigens nicht, weshalb Emery nicht die gefluegelten Exemplare von Rio de Janeiro, von denen er mehrere Stuecke erhalten hatte, als typische Art beschrieb und das einzige fluegellose Weibchen von Misiones als Unterart betrachtete (oder besser unbeschrieben liess).

Monomorium (Notomyrmex) bidentatum Mayr, 1887
subsp. *piceonigrum*, n. subsp.

(Fig. 16-17)

Monomorium bidentatum wurde 1887 von Mayr beschrieben (Verh. zool. bot. Ges. Wien, vol. 37, p. 616) nach Material von Valparaiso, Chile, und seither nicht wiedergefunden. Mir liegt ein Exemplar von Hua Hum, Sued-Cordillere, Argentinien vor, das mir eine neue Unterart darzustellen scheint, welche durch die pechswarze Faerbung und die Laenge des 2. Geisselgliedes von der Beschreibung Mayr's abweicht.

♂. — Laenge 3,8 mm, also anscheinend etwas groesser als

der Typ (3-3,5 mm). Faerbung pechschwarz (nicht braunschwarz), mit dunkelroten Reflexen an den Grenzen der Hinterleibssegmente. Fuehler und Beine kastanienbraun. Fuehler 12-gliedrig; 2. Glied so lang wie breit (nicht breiter als lang). Im Profil weist das Epinotum vorn eine kleine konvexe Erhebung auf. Der Clypeus

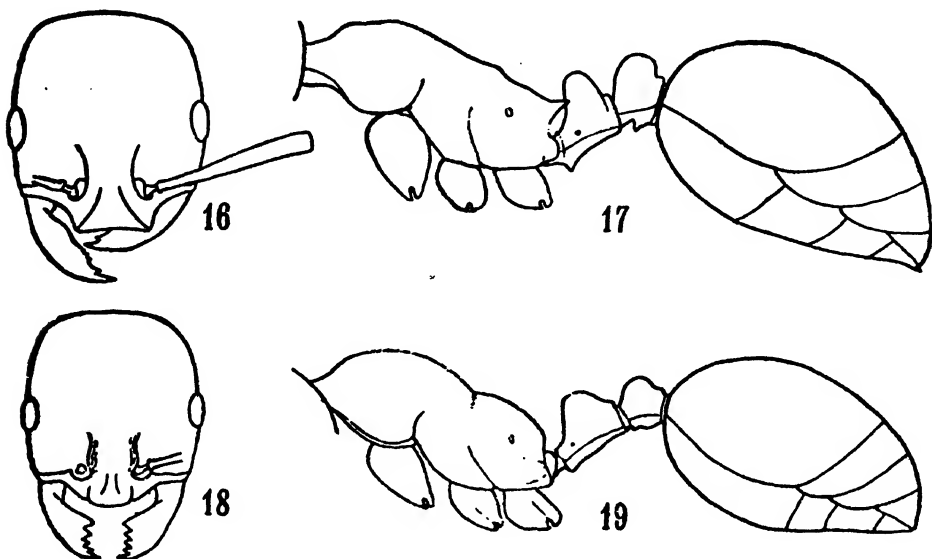


Fig. 16. *Monomorium (Notomyrmex) dentatum* Mayr subsp. *piceonigrum* n. subsp., Kopf, Dorsalansicht. — Fig. 17. Idem, Koerper im Profil. — Fig. 18. *Monomorium (Notomyrmex) denticulatum* Mayr subsp. *innerme* n. subsp., Kopf, Dorsalansicht. — Fig. 19. Idem, Koerper im Profil. (Borgmeier del.)

ist wie bei *bidentatum* s. str. gekielt und lappenartig vorgezogen; Vorderrand dieses Lappens sanft ausgebuchtet. Mandibeln schmal; der Basalrand geht unmerklich in den Kaurand ueber; letzterer mit 3 kurzen Zaehnchen in der Mitte und 2 laengeren apikalen Zaehnen. Ich gebe eine Figur des Kopfes und des Koerpers im Profil.

1 ♂ von Hua Hum, Argentinien, Sued-Cordillere, Hayward & Willink leg. XII.1947.

Monomorium (Notomyrmex) denticulatum Mayr, 1887

subsp. *innerme*, n. subsp.

(Fig. 18-19)

Die Stammart wurde von Chile beschrieben (Mayr, 1887, Verh. zool. bot. Ges. vol. 37, p. 614). Forel errichtete 1904 (Hamburg. Magalhaens Sammelr. p. 7) die var. *navarinensis*,

die in Sued-Patagonien auf der Insel Navarin gefunden wurde. Die var. *picea* Emery (1905, Boll. Soc. Ent. Ital. vol. 37, p. 120) stammt von Temuco, Chile. Die Stammart wurde von Emery (1905, loc. cit. p. 120) erwaeht von Coipué, Chile und Mte. Buenos Aires (Sta. Cruz). Bezueglich des letzteren Fundortes bemerkt Emery: "Quest'ultima località é interessante, perché situata sul versante orientale della Cordillera". Menozzi erwaeht die Art 1935 (Zool. Jahrb. Syst. vol. 67, p. 320) vom Lago Llanquihue.

Mir liegt ein Exemplar von Hua Hum (Argentinien) vor, das ich fuer eine neue Unterart oder Rasse halte, die sich durch das Fehlen der Epinotalzaehne auszeichnet.

♂. — Laenge 3,1 mm. Die Beschreibung von *denticulatum* passt im allgemeinen gut auf mein Exemplar. Doch erwaeht Mayr nicht die eigentuemliche Bildung des Clypeus. Bei meinem Exemplar ist der mittlere Teil des Clypeus vorn etwas ueber den Rand des Epistoms vorgezogen, aber so wenig, dass man bei Dorsalansicht nur einen Rand zu sehen glaubt; im Profil sind beide Raender sichtbar, doch ist der Vorderrand des Epistoms unter dem vorragenden Rand des Clypeus ausgebuchtet. An den Seiten ist der Clypeus gekielt; diese Kiele sind im Profil konvex; ferner zwei nach vorn divergierende Mittelkiele vorhanden, die aber nicht bis zum Vorderrand reichen. Stirnleisten mit Laengsrunzeln (wie bei der Stammart). Epinotum unbewehrt, ohne Zaehne, mit groben Querstreifen (auf der Basalflaeche und auf der abschuessigen Flaeche). Mesopleuren und Seiten des Epinotums grobstreifig gerunzelt. Faerbung kastanienbraun; Pronotum, Stielchen und Mandibeln roetlichbraun; Fuehler und Beine hellbraun.

1 ♂ von Hua Hum, Argentinien, Sued-Cordillere, Hayward & Willink leg. XII. 1947.

Mycocepurus reconditus Borgmeier, 1937

♂ ♂ von Mojon de Fierro, Formosa, 20.VI. 1948, Kusnezov leg.

Etwas dunkler als die Typen von Bahia und die Exemplare von Peru (Borgmeier, 1948, Rev. de Ent. 19, p. 204), aber ich finde sonst keinen durchgreifenden Unterschied.

Bibliographie.

- Borgmeier, T., 1933, Sobre algumas espécies de formigas do gênero *Eciton* Latreille (Hym. Formicidae). — Arch. Esc. Sup. Agric. Med. Vet., Rio de Janeiro, vol. 10, pp. 161-168.
- 1936, Sobre algumas formigas dos gêneros *Eciton* e *Cheliomyrmex* (Hym. Formicidae). — Arch. Inst. Biol. Veget., Rio de Janeiro, vol. 3, n. 1, pp. 51-68, 2 Fig.
- 1937, Formigas novas ou pouco conhecidas da América do Sul e Central, principalmente do Brasil. — Arch. Inst. Biol. Veget., Rio de Janeiro, vol. 3, n. 2, pp. 217-255, 38 Fig., 6 Taf.
- 1939, Nova contribuição para o conhecimento das formigas neotrópicas. — Rev. de Entomologia, Rio de Janeiro, vol. 10, pp. 403-428, 19 Fig.
- 1948, Die Geschlechtstiere zweier *Eciton*-Arten und einige andere Ameisen aus Mittel- und Suedamerika (Hym. Formicidae). — Rev. de Ent., Rio de Janeiro, vol. 19, pp. 191-206, 32 Fig.
- Eidmann, H., 1936, Oekologisch-faunistische Studien an suedbrasilianischen Ameisen. — Arb. physiol. angew. Ent. Berlin-Dahlem, vol. 3, pp. 26-114, 5 Fig., 1 Taf.
- Emery, C., 1905, Studi sulle formiche della fauna neotropica. XXVI. Formiche raccolte dal prof. F. Silvestri nell'Argentina e nelle regioni limitrofe dell'Uruguay, del Brasile, del Paraguay e del Chile. — Boll. Soc. Ent. Ital., vol. 37, pp. 107-194, 47 Fig.
- Mayr, G., 1887, Suedamerikanische Formiciden. — Verh. zool. bot. Ges. Wien, vol. 37, pp. 511-632.
- Menozzi, C., 1935, Le formiche del Cile. — Zool. Jahrb. Syst. vol. 67, pp. 319-336, 6 Fig.
- Santschi, F., 1912, Quelques fourmis de l'Amérique australe. — Rev. Suisse Zool., vol. 20, pp. 520-534, 4 Fig.
- 1936, Fourmis nouvelles ou intéressantes de la République Argentine. — Rev. de Entomologia, vol. 6, pp. 402-421, 28 Fig.

Frear: A Catalogue of Insecticides and Fungicides.

This standard-work is now complete. It was published by the Chronica Botanica Co. (P. O. Box 151, Waltham 54, Mass., U. S. A.) and forms volumes 7 and 8 of the "Annales Cryptogamici at Phytopathologici", edited by Frans Verdoorn, Managing Editor of "Chronica Botanica". The full title is:

A Catalogue of Insecticides and Fungicides, by Donald E. H. Frear, Ph. D. Vol. I. *Chemical Insecticides*. Condensation products. Miscellaneous insecticides. Patent index by contries of origin and number. Author index and literature references. (Ann. Crypt. et Phytop., Vol. 7, 1947; Sup. roy. oct., 204 two-column pages. Paper-bound \$6.50). — Vol. II. *Chemical Fungicides*. Condensation products. Plant product fungicides. Miscellaneous fungicides. Plants tested as insecticides. Patent index by countries of origin and number. Author index and literature references. (Ann. Crypt. et Phytop., Vol. 8, 1948; Sup. roy. oct., 154 two-column pages. Paper-bound \$5.50). Authorized agent for Brazil: Livraria Kosmos, Rio de Janeiro. A limited number of copies of these two volumes, bound together in morocco, and interleaved with blank paper, will be available shortly at \$22.50.

There can be little doubt that this work is invaluable to all chemists and entomologists who are concerned with the problem of pest-control. It lists over 10,000 chemicals, plants species and miscellaneous materials which have been tested for the control of insects and plants diseases. Each tested material is listed separately, with its chemical name, synonyms, and complete formula. In addition, the results of the insect and fungus tests, and one or more literature citations are given for each material. This compilation was prepared after an exhaustive examination os scientific journals, textbooks, and patents, and contains considerable heretofore unpublished information contributed by cooperating industrial and private testing laboratories. Studies in this field have been greatly stimulated within recent years by the discovery of rotenone, a natural product, and several promising synthetic organic chemicals, such as the organic thiocyanates, chloranil, and DDT. But there is no doubt that new pest-control substances are needed. The present work represents the collection and correlation of pertinent facts from a large mass of scientific information, accumulated over a period of years, but scattered in many technical publications. All research workers in entomology, plant pathology, and chemistry owe a debt of gratitude to Dr. Frear for performing this herculean task.

T. Borgmeier.

Concerning South American Saldidae (Hemiptera).

By C. J. Drake, Iowa State College, Ames, Iowa, U. S. A.,
and J. C. M. Carvalho, Museu Nacional, Rio de Janeiro, Brasil.

The present paper contains notes on the Saldidae in the Berg, Pennington and Reed collections of Hemiptera, and also records of some specimens collected by the authors.

Seven species are described as new to science. Two of the new species are from the type series of *Salda argentina* Berg in the La Plata Museum.

Only one saldid described from South America has not been examined by the writers. Our determinations, however, of two described species seem to be somewhat doubtful.

The disposition of type is given after the descriptions of each new species.

Pentacora angusta, n. sp.

Oblong, moderately large, brownish black, clothed with short, flattened, scale-like pubescence. Head blackish; ocelli amber; eyes slightly converging anteriorly. Rostrum dark fuscous, extending between middle legs. Antennae moderately long, blackish, with several bristly hairs on third and fourth segments, the basal segment short and stout, proportions I, 2 : II, 40 : III, 26 : IV, 26.

Legs moderately long, moderately stout, flavous, the front femora blackish above, annulate near apex, the other legs with dark fuscous spots, slightly variable in color.

Pronotum deeply excavated behind, with hind margin nearly straight, with narrow collar in front; sides concolorous, straight; narrowed anteriorly; front lobe considerably raised, deeply, widely foveate in the middle; hind portion nearly flat. Scutellum large, slightly longer than wide, slightly convexly raised on each side in front, nearly flat behind, the scutellum and pronotum indistinctly rugulose. Hemelytra brownish black, with few, scattered, small, testaceous or flavous spots, sometimes spots more or less obscure; membrane with five cells, the cells dark fuscous, with subbasal and subapical flavous spots, the outer cell with only one spot, the veins dark fuscous.

Length, 4.50 mm.; width, 2.00 mm.

Type (male) allotype (female) and one paratype (female) taken along the coast of Rio Negro, Argentina, in Drake collection.

This is the first record of the genus *Pentacora* Reuter, 1912, in South America. *P. angusta*, n. sp. is a little smaller than the North American species, and easily separated by color and golden scales.

Saldula araucanica (Kirkaldy)

Acanthia araucanica Kirkaldy, Rev. d'Ent., 18:93, 1899.

The type specimens were collected at Mendoza, Chile, by Edwyn C. Reed. Two females, probably part of the type series, are in the Reed collection of Chilean Hemiptera, and belong to the genus *Saldula* Van Duzee.

This species is of the same general appearance and size as *Saldula argentina* (Berg), but easily separated from it by the short, flat, golden pubescence and general color. The hemelytra are largely clouded with reddish-brown. The head, pronotum, scutellum and basal portion of clavus are blackish. The specimens agree with the original description.

Saldula chilensis (Blanchard)

Acanthia chilensis Blanchard, Gay's Chile Zool., 7:225, Hemip., pl. 2, fig. 15, 1852.

One female specimen is in the Reed collection. It seems to fit fairly well the original description, but the colored figure is very poor and of little or no help. The flavous markings on clavus and embolium and lighter color of membrane are not shown in Blanchard's figure. The antennal segments agree fairly well with figure. The species may or may not be determined correctly.

Saldula argentina (Berg)

Salda argentina Berg, Hemip. Arg., 1879, p. 293.

This species was described by Berg from four specimens, and will be discussed as mounted and labeled in Berg's collection, La Plata Museum, Argentina. It should be noted that the four specimens represent three very different and distinct species.

Two specimens, male and female, are glued on one square cardboard. The pin, which bears this card and specimens, also bears labels "Buenos Aires", "Typus" in red ink, and *Salda argentina* Berg 1879". The latter label is in Berg's handwriting and probably considered by him as most representative of the species. The male (left side of mount) is here designated as the

"type" (holotype) and the other specimen (female) as the allotype. In addition to these two specimens, there are four very typical specimens of *S. argentina* from Paraguay and so labeled in Berg's handwriting. The latter are not a part of the type series.

S. argentina is very common in Argentina. Many specimens were collected at Buenos Aires, Lujan, La Colina and Ceres in 1938-39 by C. J. Drake. Many specimens were also taken at Valparaiso, Chile, Jan. 27, 1939 by C. J. Drake and one specimen from Lima, Peru. The female tends to be a little larger than the male. The lateral margins of pronotum are flavous or fulvous in all specimens studied. The embolium and corium of hemelytra are quite variable in color, particularly in the size of spots or colored areas. These spots vary from brown to dark fuscous. In the type, the corium and embolium are luteous with brown areas; the four cells of membrane are almost hyaline. In a long series of specimens from Argentina and Chile, the embolium and cuneus are largely dark fuscous, with spots and small areas of luteous or testaceous. The color of the hemelytra is quite variable.

Mounted on a larger rectangular point is one specimen from "*Rio Colorado, K. Doering*". The pin carrying this specimen and locality label also bears label "*typus*" in red ink, and is mentioned beneath the description as collected by Lynch and Doering. The antennae are missing and membrane broken. It seems to belong to the genus *Saldula* Van Duzee, and is described below as new.

Saldula doeringi, n. sp.

Similar to *S. ventralis* Stal in general appearance, but much stouter and broader. Head black, ocelli placed close together. Pronotum black, shining, finely rugose, the outer margins from near the base to opposite middle of callus orange; callus lower and longer than in *ventralis*, occupying about two-thirds of pronotum, deeply foveate at middle. Scutellum black, shiny, longer than wide. Hemelytra dark fuscous, with most of embolium and most of basal and outer portions of corium luteous; embolium with base and spot beyond middle dark fuscous; clavus black, with large apical spot flavous. Rostrum long, fuscous. Legs testaceous, the femora apically becoming brownish. Venter black.

Length, 4.40 mm.; width, 2.00 mm.

Type (female) Rio Colorado, Lynch & Doering, in La Plata Museum, Arg.

This species is very distinct from other S. American saldids, and most closely related to *S. brasiliensis*, n. sp. and *S. ventralis* (Stal). The pronotum is strongly narrowed anteriorly and the deep orange lateral margins are visible on upper and lower sides. As the membrane is badly mutilated, it is difficult to be certain of its generic position.

Saldula lynchi, n. sp.

Broadly ovate. Head black, the ocelli rather close together. Pronotum wide, black, smooth, shining, widely expanded, the explanate lateral margins fuscous-brown, broadly rounded; callus long, moderately raised, widely and deeply foveate at middle. Scutellum black, shiny, the front lobe shorter than hind. Hemelytra broad, fuscous-brown, opaque; clavus black, becoming fuscous apically; inner vein of corium fuscate apically; membrane opaque, fuscous-brown, the cells not clear, the right hemelytra wanting. Rostrum long, fuscous. Venter brownish black, the last segment lighter apically. Legs brownish. Antennae wanting.

Length, 4.35 mm.; width, 2.35 mm.

Type (female) Chascomus, collected by Lynch and Doering, in La Plata Museum, Arg.

This specimen is pinned, bears labels "typus" in red ink, and locality label "Chascomus". It is a part of the type series (also *S. doeringi*) of *S. argentina* Berg. The broadly ovate form and fuscous-brown hemelytra separate it at once from other South American species of Saldidae. *S. sola*, n. sp., described below, has straight lateral margins of the pronotum.

Saldula sola, n. sp.

Elongate-ovate, moderately large, clothed with very short, golden pubescence. Head black, the ocelli amber, not widely separated; eyes moderately large, brownish. Antennae moderately long, clothed with short hairs, the basal two segments brown, the others black-fuscous; proportions I,19 : II,40 : III,32 : IV,34. Rostrum brownish, shining, extending to base of metasternum. Legs brownish, moderately long.

Pronotum wide, finely rugose behind, nearly twice as wide at base as median length, black, the sides rather broadly margined with reddish brown, moderately rounded; callus large, about two-thirds as long as pronotum, moderately raised at center; deeply excavated behind, the lateral margins moderately explanate. Scutellum longer than wide, black, the transverse impression a little before the middle. Hemelytra largely reddish brown; clavus

black-fuscos, with flavous spot before apex; corium with one or two pale streaks or spots apically; embolium with fuscous area within near base and beyond middle; membrane brownish, with four cells, each cell usually with a pale brown spot near base and another near apex. Venter black.

Length, 4.35 mm.; width, 2.00 mm.

Type (male) and allotype (female), Rio Negro, Argentina, in Drake collection.

In the type, the apical portion of clavus is partly reddish brown, and the male genitalia are not visible on card beneath hemelytra. The corium and embolium have conspicuous dark fuscous areas and markings. The inner vein of corium is divided apically.

Saldula ventralis (Stal)

Salda ventralis Stal, Svensk. Vet.-Ak. Handl., 2 (7):81, 1860.

Acanthia centralis Stal, Enum. Hemip., 111:148, 1873.

Salda ventralis Champion, Biol. Centr.-Amer., Rhynch. 2:342, pl. XX, figs. 9&10a, 1898.

Champion has redescribed and published an excellent figure of this species. The hemelytra, especially, corium show considerable variation in color. A male and female from Chapada, Brazil, are before us. The dark fuscous areas of corium are larger and more pronounced in female. The ocelli are rather close together and inserted in a faintly elevated area. The sulcus behind the callus is a little beyond the middle of pronotum. This species and *S. brasiliensis*, n. sp., possess some of the characteristics of *Chartoscrita* Stal, but belong to the genus *Saldula* Van Duzee.

Saldula brasiliensis, n. sp.

Oblong, blackish, with luteous or testaceous markings, and short golden pubescence. Head black, with four luteous spots; ocelli placed close together, amber in color. Antennae rather long, shortly pilose, brownish black, the basal segment beneath and a wide band near middle of last segment flavous; proportions I,18 : II,36 : III,30 : IV, 30. Rostrum shiny, fuscous, long, almost reaching base of metasternum. Abdomen beneath with first four segments flavous, the others blackish. Legs fuscous, the middle coxal plates, trochanters, hind and middle femora beneath and subapical bands of tibiae flavous.

Pronotum black, somewhat shiny, sharply narrowed anteriorly, finely rugulose behind; lateral margins moderately explanate, longly flavous above and beneath along middle, the outer edges

straight and narrowly dark; callus moderately raised, foveate at middle, its posterior sulcus deep and behind the middle. Scutellum large, black, finely rugose in front, longer than wide. Hemelytra long, narrowed behind; clavus black, with inner subbasal and subapical spots flavous; corium blackish, with inner vein fuscate apically, with one or two spots before middle flavous; embolium along basal half and large subapical spot flavous, subhyaline; membrane dark brown, with four cells, the veins darker, the two outer cells lighter apically.

Length, 4.15 mm.; width, 2.00 mm.

Type (female), Minas Geraes, Brazil, C. R. Claro, 1947, in the Museu Nacional, Rio de Janeiro, collection; four paratypes, taken with type (two in Drake collection).

This species is similar in size and form to *Saldula ventralis* (Stal) but easily distinguished by the darker color of hemelytra and flavous first four segments of venter. The abdomen beneath is blackish in *ventralis* and the embolium of elytra largely pale.

Saldula differata, n. sp.

Moderately large, oblong-ovate, black, the hemelytra brownish-black, with pale markings. Head black, the ocelli amber. Antennae black, shortly pilose, the basal segment partly flavous; proportions I,20 : II,42 : III,22 : IV,23. Rostrum black-fuscous, extending between intermediate coxae. Legs dark fuscous, the coxae and femora beneath flavous, sometimes spotted. Venter black, the last segment apically flavous.

Pronotum black, shiny, deeply excavated behind, twice as wide at base as median length, the lateral margins expanded, rounded, concolorous; callus moderately raised, deeply foveate at middle; hind portion finely rugulose. Scutellum black, shiny, longer than wide. Hemelytra with conspicuous markings; clavus black, with elongate, subapical, flavous spot; corium with inner vein fuscate, dark fuscous, with flavous areas, a large flavous spot near outer middle, and another darker spot at center; embolium dark fuscous at base and with flavous areas along margin beyond middle, there very narrowly edged with fuscous; membrane faintly fumose, hyaline, the veins dark, the right hemelytron with four normal cells, the left one with cells variously divided and abnormal.

Length, 4.35 mm.; width, 2.00 mm.

Type, female, Rio Negro, Argentina, in Drake collection.

This species is similar in form and size to *S. argentina* but easily separated by the concolorous pronotal margins and much darker hemelytra.

Saldua penningtoni, n. sp.

Small, obovate, blackish, somewhat sericeous, with short golden pubescence, the embolium and membrane subhyaline. Rostrum long, shiny, fuscous, reaching between hind coxae. Antennae dark fuscous, shortly pilose, proportions I,14 : II,25 : III,22 : IV, 24. Ocelli amber in color. Abdomen beneath brown to black; last venter in female narrowed posteriorly, becoming flavous apically. Male genital segments black, the claspers strongly curved.

Pronotum black, almost smooth, clothed with short, fine, golden pubescence, strongly narrowed anteriorly, the sides narrowly explanate and rounded; callus moderately raised, deeply foveate at middle; hind margin broadly, roundly emarginate. Scutellum large, black, clothed with short, golden pubescence, the hind lobe slightly longer and slightly rugulose. Hemelytra with short golden pubescence; clavus dark fuscous, with whitish spot near apex; corium dark brown, with two or three pale spots; embolium subhyaline, with two or three small brown spots; membrane clear, with four cells, the veins and a small spot in each cell brown. Legs pale brown; femora often with dark spots, flavous at apices, beneath and trochanter white or flavous; tibiae with two wide, whitish bands; second tarsal segment (sometimes also third) whitish.

Length, 3.10 mm.; width, 2.25 mm.

Type (male), allotype (female) and many paratypes, Buenos Aires, Nov. 23, 1938, collected near a shallow pond and along a small stream by C. J. Drake; Lujan, Arg., Dec. 18, 1938, C. J. Drake; Lima, Peru, Feb. 2, 1939, C. J. Drake. Type in Drake collection.

This is the species wrongly determined by Dr. M. S. Pennington as *Salda argentina* (not Berg) (Lista Hemip. Heterop. Rep. Arg., 1921, p. 32). *S. penningtoni*, n. sp. is much smaller than *S. argentina*, and has the margins of pronotum concolorous with rest of pronotum.

Ross: A Textbook of Entomology.

John Wiley & Sons, Inc. (440 Fourth Ave., New York 16, N. Y.) have just published a new book of considerable interest to all entomologists: "A Textbook of Entomology", by Herbert H. Ross, Professor of Entomology at the University of Illinois (532 pp., 434 text-figures; \$6.00). Stressing the important basic principles, the author has reoriented the whole subject within the general field of biology. The discussions of the history and growth of entomology, the geological history of insects, ecological considerations, insect anatomy and physiology, the life cycle, the orders of insects and the classes of Arthropoda, and the control of insects present a complete picture of entomology in relation to the whole field of biology. Profusely illustrated, well written, and up to date, this book fills a genuine need in entomological literature. From the Preface we quote the following: "In the interest of simplicity, physiology has been segregated as a separate chapter, following a treatment of external and internal anatomy. In this way it has been possible to organize physiology by function, rather than structure, since the former is much easier for students to follow. A word of caution is in place regarding the keys of orders and families. These are designed to accomodate only common members of common families and hence are far from complete. They are intended primarily to aid beginning students in realizing the type of differences used in delimiting orders and families and to give them practice in the actual manipulation of keys". Professor Ross, in addition to his teaching duties, has been connected with the Natural History Survey, Urbana, Illinois, since 1931 as Systematic Entomologist. A graduate of the University of British Columbia and holder of advanced degrees in entomology from the University of Illinois, he is also Secretary of the Entomological Society of America.

T. B.

Estudos Sobre Tabânidas Brasileiros. VI. *Anaerythrops*, n. gen. (Diptera, Tabanidae).

Por Mauro Pereira Barretto, Docente livre e Assistente do Departamento de Parasitologia da Faculdade de Medicina, Universidade de São Paulo. *

(Com 6 figuras)

Em uma das excursões realizadas em companhia do Prof. John Lane à Serra da Cantareira, São Paulo, encontramos, ainda viva, uma fêmea de tabânida aderente à superfície da água de um pequeno reservatório de cimento destinado à captação de água de abastecimento de São Paulo. Este exemplar pareceu-nos, na ocasião, pertencer a uma espécie nova de *Diachlorus* Ost.-Sack., 1878, a despeito de certos caracteres que adiante assinalaremos.

Posteriormente, trabalhando no Itatiaia com armadilha de Shannon, capturamos outra fêmea da mesma espécie, e, examinando as coleções do Departamento de Zoologia, encontramos um exemplar macho de espécie semelhante, mas não idêntica. Estudando este material, verificamos estar diante de um gênero novo que descreveremos a seguir. Queremos deixar aqui consignados os nossos agradecimentos ao Sr. Messias Carrera, pelo exemplar que pôs a nossa disposição.

Anaerythrops, n. gen.

Olhos na fêmea glabros; constituídos por facetas de tamanho uniforme, vermelhos com reflexos violáceos na metade superior, e verdes na metade inferior; no macho constituídos, em sua maior parte, por facetas grandes, sendo a área de facetas pequenas reduzidas ao quarto inferior e prolongando-se como uma estreita orla nas bordas laterais, para desaparecer na borda superior; a área de facetas grandes é castanho-avermelhada e o resto verde-claro. Vértice da fêmea largo e deprimido, do macho extremamente deprimido e pequeno; placa ocelar indistinta e ocelos ausentes nos dois sexos. Pós-fronte da fêmea larga e com calo grande e protuberante; no macho muito reduzida. Clípeo da fêmea grande, protuberante e brilhante na maior parte da sua extensão; do macho, deprimido e opaco. Antena curta, com o I segmento subcônico e um pouco mais longo que largo; II com

*) Trabalho realizado com auxílio financeiro da Fundação José Pinto Alves e lido na sessão de 26-XI-47 da Seção de Higiene e Medicina Tropical da Associação Paulista de Medicina.

largura igual ao comprimento; III curto, mais curto que a soma de I+II, sem dente ou ângulo dorso-basal. Probóscida curta; palpo da fêmea do comprimento da probóscida e com o II segmento curvo e grosso, principalmente na base. Basicosta nua na fêmea e com alguns macrotríquios no macho; R_4 com um apêndice curto; célula R_5 aberta. Pernas normais, com as tíbias anteriores não dilatadas ou encurvadas. Abdomen curto, largo e pouco abaulado. Genitália do macho: IX e X tergitos fundidos formando uma placa pouco esclerotizada de cada lado, placas estas mais largas atrás, separadas por uma área membranosa ampla, e pouco pilosas; cerci ovulares, pouco pilosos; IX esternito fundido com os basistilos; dististilo muito esclerotizado, grosso, pouco curvo e com alguns pêlos rudimentares. Hipoprocto largo, pouco esclerotizado e com muitas fileiras de pêlos em toda a metade distal.

Genótipo: *Anaerythrops lanei*, n. sp.

Discussão. — *Anaerythrops*, n. gen. assemelha-se muito a *Dia-chlorus* Ost.-Sack., 1878, distinguindo-se, porém, porque as espécies deste gênero têm olhos escuros com faixas irregulares de cor verde-clara, e possuem as tíbias anteriores encurvadas e espessadas.

É também próximo de *Leptapha* End., 1923 podendo ser distinguido, porque a única espécie deste gênero, *L. fumata* (Wied., 1821), tem olhos escuros e com duas faixas transversais verde-claras; antenas muito longas e delgadas, com o I segmento cilíndrico e o III delgado e com uma dilatação dorso-basal; palpos mais curtos que a probóscida e com o segundo segmento delgado; clipeo não saliente e polinoso.

Anaerythrops lanei n. sp. (♀)

(Figs. 1-2 e 6)

Dimensões. — Comprimento da antena: 1,1 mm; comprimento do corpo: 6,6-7,2 mm; comprimento da asa: 7,4-8,4 mm; largura da asa: 2,8-3,2 mm.

Cabeça. — Olhos glabros, vermelhos com reflexos violáceos na metade superior, e verde-claros na metade inferior. Vértice acentuadamente deprimido, castanho-escuro, com duas pequenas manchas de pólen cinzento-amarelado na parte posterior, e brilhante no resto da sua extensão, com pêlos pretos relativamente longos e abundantes. Placa ocelar indistinta; ocelos ausentes. Pós-fronte posterior larga, de bordas aproximadamente paralelas, castanho-escura ou preta, com pólen amarelo-acinzentado e pêlos castanhos esparsos. Calo quadrangular, mais largo que alto, pouco afastado das bordas oculares, rugoso, castanho-

escuro e brilhante; lista muito larga, curta, castanho-escura, rugosa e brilhante, separada do calo por uma faixa de pólen. Pós-fronte anterior castanha, com pólen amarelo e sem pêlos. Clípeo

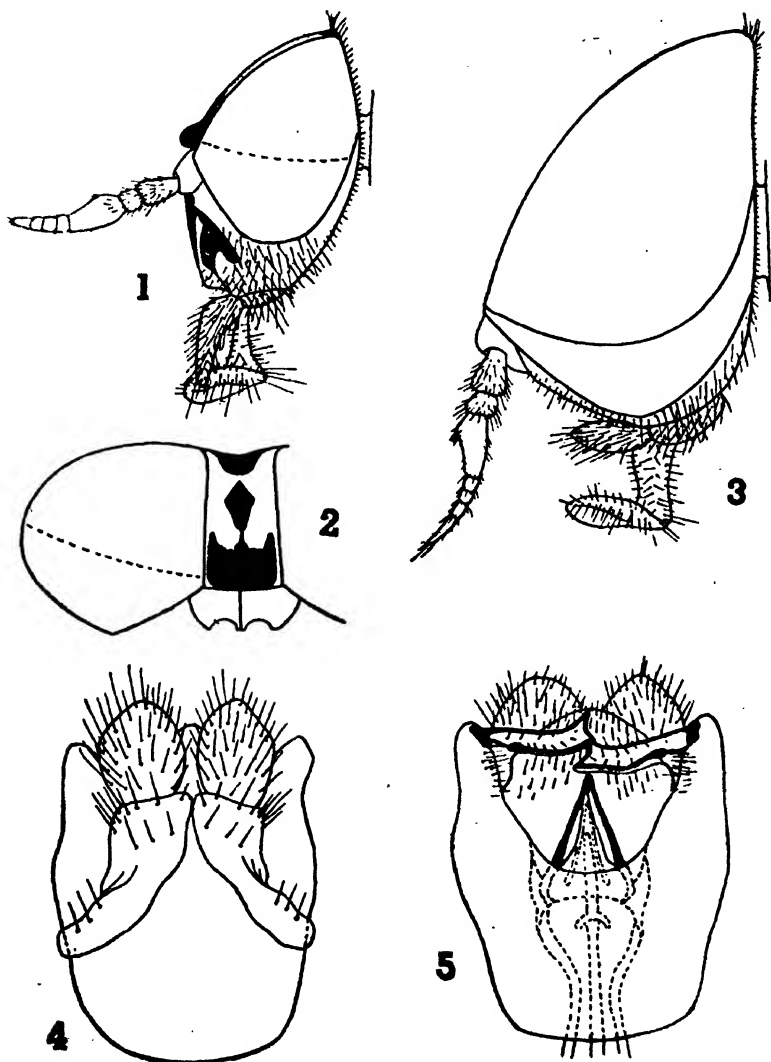


Fig. 1. *Anaerythrops lanei* n. g. n. sp., cabeça da fêmea, vista lateral. — Fig. 2. Idem, Fronte. — Fig. 3. *Anaerythrops philipi* n. sp., cabeça do macho, vista lateral. — Figs. 4-5. Idem, genitália do macho.

castanho-escuro, quase inteiramente liso e brilhante, com pólen acinzentado apenas na parte anterior, e com raros pêlos castanho-escuros. Gena castanha, com pólen amarelo-acinzentado, exceto nas proximidades das fossetas tentoriais que são lisas e brilha-

tes; pêlos castanho-escuros. Pós-gena castanho-escura, com pólen acinzentado e pêlos castanhos, havendo alguns amarelados de permeio. Occipício castanho-escuro, com pólen e pêlos amarelados. Antena curta; I segmento com forma de tronco de cone, um pouco mais longo que largo; II igual à metade do I, tão longo quanto largo; III um pouco mais curto que os dois primeiros, sem dente ou ângulo dorso-basal; todos castanho-amarelados claros, com pólen amarelo e pêlos pretos esparsos. Ceratóstilo preto, com pêlos pretos. Probóscida curta castanho-escura, com pólen cinzento-amarelado e pêlos castanhos e amarelados. Palpo do comprimento da probóscida, castanho-amarelado claro, com pólen amarelo e pêlos pretos pouco abundantes, mas longos; II segmento bem curvo e grosso, principalmente na base.

Tórax. — Pronoto castanho-amarelado, com pólen acinzentado e pêlos amarelados. Pré-escudo e escudo castanho-escuros, exceto ao longo de uma linha para-mediana e da sutura transversa e nas bordas laterais, que são castanho-claras; pólen cinzento-amarelado, mais abundante sobre as linhas para-medianas e nas bordas laterais; revestimento piloso castanho-escuro ou preto, exceto nos calos pré e pós-alares onde os pêlos são amarelados, havendo também pêlos desta cor aos lados do pré-escutelo e, menos numerosos, sobre as linhas para-medianas. Escutelo castanho-amarelado, totalmente coberto de pólen amarelo-acinzentado e pêlos amarelados e brancos. Notopleura castanho-clara, com pólen amarelo-ocráceo e pêlos castanhos, havendo pêlos amarelos na parte superior. Pleuras castanho-escuras, com pólen cinzento e pêlos castanho-escuros.

Asa. — Sobre um fundo amarelado destacam-se: 1) uma área irregular castanho-acinzentada ocupando a maior parte das células *C* e *R* e a base de *M*; 2) uma mancha irregular castanho-escura ocupando o meio da célula R_1 , o ápice da *R* e *M* e a base da R_3 , da 1ª M_2 , da M_3 e da M_4 ; 3) uma mancha castanho-escura arredondada e pequena sobre o ponto de bifurcação de R_{3-4-5} ; uma mancha castanho-escura irregular e pequena sobre o ápice da 1ª M_2 e a base da 2ª M_2 e da M_3 ; 5) uma faixa castanho-acinzentada que contorna a asa desde o estigma até o ápice da célula *Cu* e que se estreita de diante para traz. Nervuras castanho-escuras. R_4 com um pequenino apêndice. Estigma amarelo, pouco evidente. Calípteros amarelados, com um tufo basal de pêlos amarelos.

Balancim. — Amarelo.

Pernas. — Coxas e fêmures pretos, com pouco pólen acinzentado e com pêlos pretos e castanho-escuros. Tibia anterior com a metade basal amarela e revestida de pêlos da mesma cor, e a metade distal castanha com pêlos pretos; tibias média e posterior amarelas, com pêlos desta cor nos três-quartos basais, e pretos no quarto distal. Tarsos castanhos, os anteriores mais escuros, todos revestidos de pêlos pretos.

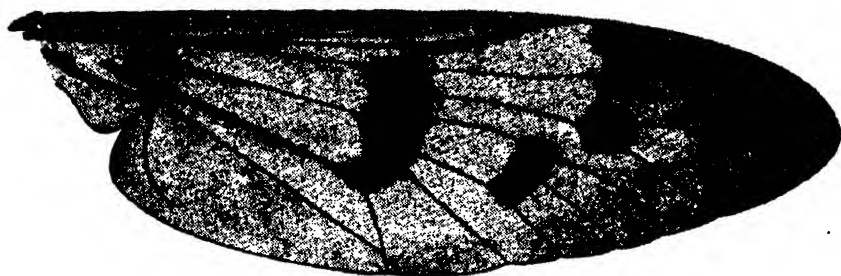


Fig. 6. *Anaeothrips lanei* n. g. n. sp., asa da fêmea.

Abdomen. — Tergitos castanhos; I e II amarelados nas partes laterais; II-VI com faixa amarela na borda posterior, faixa que é mais larga e forma triângulo mediano e manchas nos ângulos póstero-laterais dos segmentos. Revestimento piloso castanho-escuro, exceto nas áreas claras mencionadas dos tergitos II-IV, onde os pêlos são amarelos, formando uma franja na borda posterior e manchas no triângulo mediano e nos ângulos póstero-laterais; na borda posterior dos tergitos V-VIII há pêlos amarelos misturados com castanhos. Esternitos um pouco mais escuros que os tergitos, com pólen acinzentado e pêlos castanho-escuros.

Localidade Típica. — Faz. da Serra (a 1.100 ms), Itatiaia, Est. do Rio de Janeiro (Barretto col., VIII-46).

Localidade Adicional. — Pau-Furado, Cantareira, São Paulo, Est. de São Paulo (Barretto e Lane col., VIII-45).

Tipos. — Halótipo ♀ e um parátipo ♀ na coleção do Departamento de Párasitologia da Faculdade de Medicina da Universidade de São Paulo.

Anaerythrops philipi, n. sp. (♂)

(Figs. 3-5)

Dimensões. — Comprimento da antena: 1,4 mm; comprimento do corpo: 12,6 mm; comprimento da asa: 12 mm; largura da asa: 3,8 mm.

Cabeça. — Olhos glabros, na sua maior extensão formados de facetas grandes; a área de facetas pequenas ocupa somente o quarto inferior e se prolonga, sob a forma de uma faixa estreita, nas bordas laterais dos olhos, diminuindo de largura até desaparecer na borda superior; a área de facetas grandes é avermelhada e a de facetas pequenas verde-clara. Vértice profundamente situado entre os olhos, extremamente reduzido. Placa ocelar indistinta; ocelos ausentes. Pós-fronte pequena, triangular, plana, castanho-clara e revestida de pólen ocráceo. Clípeo não-saliente, castanho-claro, totalmente coberto de pólen cinzento-ocráceo, e com pêlos castanhos esparsos. Gena e pós-gena castanhas, com pólen castanho-acinzentado claro e pêlos castanhos. Occipício castanho-escuro, com pólen cinzento e pêlos esbranquiçados, exceto nas bordas oculares, onde os pêlos são pretos. Antena com os segmentos I-III castanho-amarelados e revestidos de pólen amarelo-acinzentado; ceratóstilo preto; todos os segmentos com pêlos pretos. I segmento pouco mais grosso no ápice que na base, tendo o comprimento ligeiramente superior à largura máxima; II com o comprimento igual à largura; III mais curto que a soma I+II, apenas com uma leve saliência dorso-basal que não chega a formar dente, nem mesmo ângulo; no seu ápice nota-se um esboço de segmentação; ceratóstilo longo e delgado, menos longo que o III segmento. Probóscida curta, castanho-escura, com pêlos castanhos; palpo castanho-amarelado, com pólen cinzento-ocráceo e pêlos castanhos.

Tórax. — Pronoto castanho-amarelado, com pólen da mesma cor e pêlos esbranquiçados. Pré-escudo e escudo castanho-claros, com uma larga faixa para-mediana de cor mais escura; pólen cinzento-amarelado pouco abundante, mais visível nas partes anterior e laterais; revestimento constituído por pêlos pretos ou castanhos, havendo alguns pêlos brancos ao longo da linha média, entre as duas faixas castanho-escuras, e nas bordas laterais, principalmente nos calos pré e pós-alares. Escutelo castanho-claro, com pólen amarelado e uma mistura de pêlos pretos e brancos, estes mais abundantes na borda posterior. Notopleura castanha, com pêlos castanhos e esbranquiçados, estes mais abun-

dantes nas vizinhanças da sutura notopleural. Pleuras castanhas, com pólen cinzento-amarelado e pêlos castanhos, havendo alguns esbranquiçados na parte superior do catamesepisterno e no catapleurotergito.

A s a. — Semelhante à da espécie precedente, mas com as manchas escuras maiores, mais nítidas e bem delimitadas; a mancha escura basal invade a célula *Cu*. Basicosta com alguns macrotríquios na metade distal.

B a l a n c i m. — Castanho-amarelado claro.

P e r n a s. — Inteiramente castanhas, sendo os tarsos um pouco mais escuros. Coxas com abundante pólen acinzentado, com pêlos castanhos e com alguns esbranquiçados, principalmente a coxa anterior. Fêmures com escasso pólen acinzentado, com pêlos castanhos e com alguns esbranquiçados na base do fêmur médio e na face interna do posterior. Tíbias e tarsos com pêlos pretos.

A b d o m e n. — Tergitos castanho-claros. I e II com faixa amarela apical, faixa esta que se alarga no meio para formar uma área triangular; III-VII apenas com estreita orla clara na borda posterior, alargando-se nos ângulos póstero-laterais. Revestimento constituído por pêlos castanhos, II-VII com pêlos amarelos na borda posterior, nos ângulos póstero-laterais e nas bordas laterais. Esternitos castanho-amarelados, tornando-se mais escuros no ápice do abdomen, todos com a borda posterior mais clara, com abundante pólen acinzentado e revestidos de pêlos castanhos e amarelos, estes mais abundantes na borda posterior dos segmentos.

T e r m i n á l i a. — Com os caracteres descritos para o gênero.

L o c a l i d a d e T í p i c a. — Banhado, Deodoro, Est. Paraná (Hatschabach col., XI-44).

T i p o. — Halótipo ♂ na coleção do Departamento de Zoologia de São Paulo.

Summary

The author describes *Anaerythrops*, n. gen., wich is close to *Diachlorus* Ost.-Sack., 1878 and *Leptapha* End., 1923, but differs from both by the eye-coloration, among other characters. The genotype is *A. lanei*, n. sp. (♀). *A. philipi* n. sp. (♂) is also described.

Bibliografia

- Philip, C. B., 1941, Comments on the supra-specific categories of Nearctic Tabanidae (Diptera). — Can. Ent., 73:2-14.
- Osten-Sacken, O., 1875-78, Prodrome of a monograph of North American Tabanidae. — Mem. Boston Soc. Nat. Hist., 2:365-397, 421-479, 555-566.
- Enderlein, G., 1923, Vorläufige Diagnose neuer Tabaniden-Genera. — Deut. Ent. Zeitchr., pp. 544-555.
- Bigot, J. M. F., 1892, Nova Genera Dipterorum. — Wien. Ent. Zeit., 11:162.
- Macquart, J., 1834, Histoire Naturelle des Insectes Diptères (Suite à Buffon), 1:186-216.

Descrição de um Novo Gênero de Mydidae do Chile e Redescrição do Gênero Megascelus (Apioceratidae) (Diptera).*

Por Messias Carrera
e Maria Aparecida Vulcano d'Andretta.
(Do Departamento de Zoologia da Secretaria de Agricultura do Estado de São Paulo).

(Com 11 figuras)

Estudando um pequeno lote de dípteros da fauna chilena, previamente incluído na família *Mydidae*, deparamos com três espécimes, cujos característicos permitiram definir, um deles, como *Mydas igniticornis* Bigot, 1857, e os dois restantes como *Megascelus nigricornis* Philippi, 1865.

Estabelecemos neste trabalho para a primeira espécie um novo gênero, ao qual denominamos *Paramydas*, e redescrevemos o gênero *Megascelus*, assim como as espécies-tipo de ambos.

Em 1868, Schiner, examinando exemplares típicos de *Mydas igniticornis*, considerou esta espécie como sinônima de *Mydas apicalis*, uma espécie brasileira descrita por Wiedemann em 1829. Confrontando-se, porém, os caracteres destas espécies, verifica-se que há entre ambas tão acentuadas diferenças, que não só tornam impossível esta sinonímia, como também indicam a possibilidade de um agrupamento genérico distinto para *igniticornis* que apresenta caracteres inexistentes no gênero *Mydas* F., 1794.

Com a criação de *Paramydas*, n. gen., a fauna chilena fica, presentemente, sem nenhuma espécie de *Mydas*, pois todas as que foram descritas neste gênero fazem parte de outros, estabelecidos posteriormente.

Philippi, em 1865, descreveu *Mydas lugens* que foi considerada por Gerstaecker, em 1868, como idêntica a *igniticornis*, com o que estamos de acordo. Os caracteres indicados por Philippi, para distinguir *lugens* de *igniticornis*, residem na pontuação do abdomen e na cor das antenas. Quanto à pontuação do abdomen, acreditamos não haver diferença entre "finement chagrinés" de *igniticornis* e "grob punktiert" de *lugens*. A respeito da coloração das antenas, diz Bigot: "Bouton des antennes et partie de sa base, orangé vif" e Philippi: "articulis antennarum duobus ultimis fulvo-rufis". Neste particular,

*) Trabalho apresentado na Reunião da Sociedade Brasileira de Entomologia de 28-IV-1948.

o espécime que examinamos, mostra um caráter intermediário, pois nele só o último artigo antenal é vermelho-alaranjado.

Embora não nos tenha sido possível consultar a figura que caracteriza *Mydas bonariensis* Guér., 1835 (Iconogr. Règn. Anim. VII, Ins. 543, Tab. 97, fig. 5), achamos que, pelos dados fornecidos por Walker (1854) e Gerstaecker (1868), ela é uma espécie muito diferente de *igniticornis*.

Neste trabalho, para a denominação das nervuras, seguimos Mont Cazier (1941).

Mydidae

Paramydas, n. gen.

Cabeça (Fig. 1) um pouco mais larga do que o tórax; olhos nus; fronte levemente mais larga na região mediana, com uma depressão central situada pouco acima da base das antenas; vértice escavado; um ocelo no meio da fronte, pouco nítido; occipício revestido de pêlos; probóscida pouco saliente; labelo piloso; palpos muito pequenos, situados no interior da cavidade bucal, visíveis só com grande aumento; face saliente na região clipeal, com duas reentrâncias laterais, pilosa na base das antenas que é também saliente; antenas duas vezes mais compridas que o comprimento da cabeça, ou tão comprida como a largura desta; primeiro artigo antenal duas vezes mais longo do que o segundo; o terceiro cilíndrico e pouco menor do que o quarto que é claviforme e com microscópica projeção apical.

Tórax levemente convexo, com pouca pilosidade; calos humerais salientes; escutelo pequeno, com duas depressões laterais; região pós-escutelar nua; pleuras com pilosidade mais densa na "pteropleura".

Pernas: fêmures posteriores claviformes, com uma fileira de pequenos espinhos na face interior; tibia levemente encurvada, tendo no ápice uma projeção espiniforme; tarsos pequenos; pulvilos do tamanho das garras; empódio atrofiado.

Asa com as nervuras $R_5 + M_1$ e M_2 terminando na nervura C; M_{3-4} terminando na borda da asa; célula anal fechada e peciolada; esquâmula com uma franja de cerdas esquamiformes.

Abdomen de lados paralelos e com o tegumento grossamente pontuado; pilosidade escassa. Genitália da fêmea pequena.

Genótipo: *Mydas igniticornis* Bigot, 1857.

Discussão taxonômica: Este gênero distingue-se de *Mydas* F., 1794, pelos seguintes caracteres: antenas, no máximo, duas vezes mais longas que o comprimento da cabeça, sendo em *Mydas*

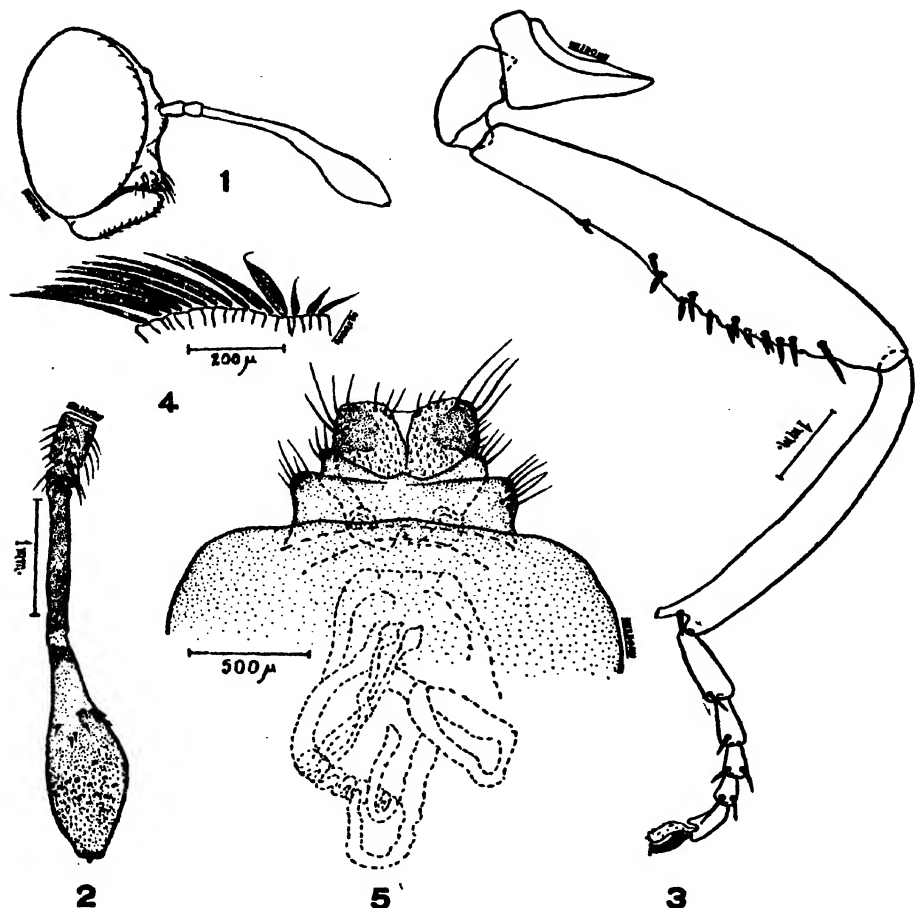


Fig. 1. *Paramydas igniticornis*, perfil da cabeça. — Fig. 2. *Paramydas igniticornis*, antena. — Fig. 3. *Paramydas igniticornis*, perna posterior. — Fig. 4. *Paramydas igniticornis*, esquâmula. — Fig. 5. *Paramydas igniticornis*, genitália da ♀, vista dorsal.

sempre maiores; nas asas, R_5+M_1 e M_2 terminam na nervura costal, em *Mydas* a R_5+M_1 termina na R_1 e a M_2 na costal; o tegumento do abdomen apresenta nítida pontuação, sendo este um caráter por nós desconhecido em qualquer outro *Mydas*.

A separação entre *Paramydas* n. gen. e *Apiophora* Philippi, 1865, pode ser feita pela esquâmula, que em *Paramydas* mostra uma franja de cerdas esquamiformes e em *Apiophora* uma franja de finos cílios. Este caráter de *Apiophora* foi assinalado por Ségu y (1938), mas pela figura de Philippi para *A. paul-*

seni podemos acrescentar ainda a ausência de um apêndice de nervura na bifurcação formada por R_4 e R_5+M_1 que é presente em *Paramydas*. Segundo Schiner (1868), *A. paulseni* apresenta espinhos na genitália da fêmea.

Pelo comprimento das antenas de *Paramydas*, ele se aproxima de *Lampromydas* Séguy, 1928, do qual pode ser distinguido pela pilosidade do mesonoto que é muito escassa, pelas nervuras das asas e pelo abdomen pontuado.

Miltinus Gerst., 1868, tem uma nervulação semelhante, mas *Paramydas* se separa pela pontuação do tegumento no abdomen e pela ausência de espinhos na genitália da fêmea.

Acreditamos que estes caracteres, distinguindo *Paramydas* dos gêneros que lhe são mais afins, juntamente com o fator zoológico, justificam plenamente a sua criação.

Paramydas igniticornis (Bigot)

Mydas igniticornis Bigot, 1857, Ann. Soc. Ent. France (3) 5:288; Gerstaecker, 1868, Stett. Ent. Zeitg. 29:97.
Mydas lugens Philippi, 1865, Verh. Zool.-bot. Ges. Wien, 15:684.
Mydas apicalis Schiner, 1868 (nec Wied., 1829), Novara Reise, 153.

♀. — Comprimento do corpo 18 mm; da asa 14 mm.

Cabeça (fig. 1) preta, com pilosidade de igual cor; ño meio da fronte encontra-se pequena região saliente e brilhante; occipício aveludado; antenas (fig. 2) com os três primeiros artigos pretos, o quarto de cor amarelo-alaranjada, com minúscula pilosidade preta pouco antes do meio.

Tórax preto-fosco; mesonoto com pilosidade preta, formando quatro faixas longitudinais que se fundem atrás do calo humeral, mas não recobrem a porção mediana da sua margem anterior; posteriormente estas faixas são pouco distintas; escutelo com curta pilosidade preta; pilosidade das pleuras preta, mais abundante na "pteropleura".

Pernas pretas, com pêlos e pequenas cerdas pretas; as cerdas espiniformes da dupla fileira nos fêmures posteriores (fig. 3) são distanciadas; pulvilos amarelos.

Asas (fig. 10) escurecidas, deixando regiões claras no meio das células apicais e nas células da região anal, com reflexos de cor violeta; nervuras pretas; esquâmula (fig. 4) preta; halteres pretos.

Abdomen preto, com reflexos metálicos de cor verde-azulada, grossamente pontuado e com esparsa e curta pilosidade pre-

ta. Genitália (fig. 5 e 6) preta, com pequenos pêlos claros no ápice.

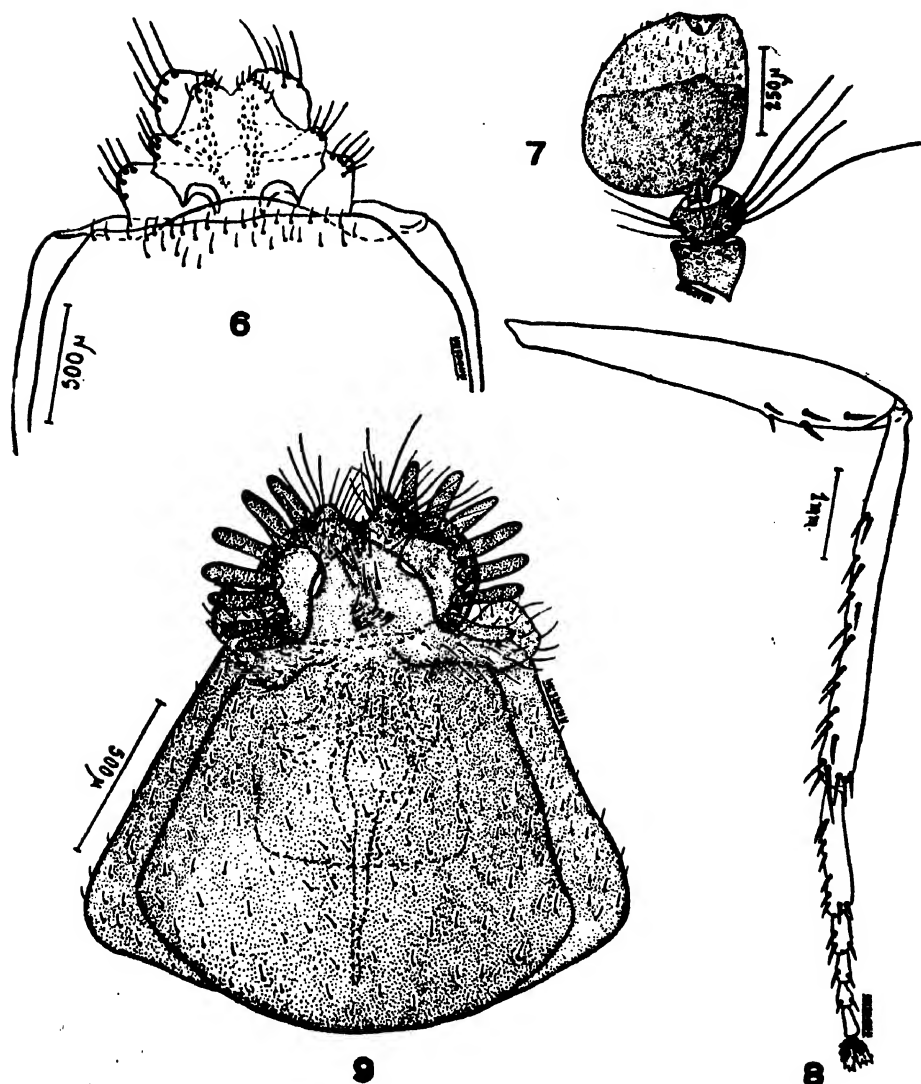


Fig. 6. *Paramydas igniticornis*, genitália da ♀, vista ventral. — Fig. 7. *Megascelus nigricornis*, antena. — Fig. 8. *Megascelus nigricornis*, perna posterior. — Fig. 9. *Megascelus nigricornis*, genitália da ♀, vista ventral.

Material examinado: — Uma ♀ N.º 111.184 da coleção Depto. Zool. Secret. Agric., com a seguinte procedência: Chile, Santiago, Çanelo, Dezembro de 1944 (Ramirez).

Apioceratidae

Megascelus Philippi

Megascelus Philippi, 1865. Verh. Zool.-bot. Ges. Wien, 15:682.

Megascelus foi erroneamente considerado por Kertész (1909) como sinônimo de *Dolichogaster* Macquart, 1848, gênero da família Mydidae e constituído apenas por uma espécie, do Brasil.

Recentemente (1948), Paramonow publicou um trabalho, no qual estabelece a verdadeira localização sistemática de *Megascelus*, diferenciando-o nitidamente de *Dolichogaster*. As considerações de Paramonow estão de pleno acordo com o material que observamos e como nada mais temos para acrescentar a elas, limitamo-nos a redescrever o gênero *Megascelus*, baseados em dois espécimes fêmeas da sua espécie-tipo.

Redescrição do gênero: — Cabeça oval; fronte triangular, um pouco saliente na base das antenas, onde é duas vezes mais larga do que no vértice; três ocelos, sendo dois localizados nos lados de uma pequena elevação no vértice e o terceiro, grande, situado no meio da fronte; pilosidade esparsa; occipício convexo e com pilosidade; probóscida voltada para cima, tão longa quanto o comprimento das antenas; palpos pequenos, um quinto do comprimento da probóscida; face côncava, abrigando as peças bucais, cujo ápice quase alcança a base das antenas; antenas com os dois primeiros artículos subiguais; o terceiro globoso, com uma fovea subapical e quase duas vezes tão grande quanto os basais reunidos.

Tórax: o mesonoto levemente convexo; calos humerais e calos da "metapleura" muito salientes; pilosidade escassa; região pós-escutelar com alguns pêlos laterais.

Pernas delgadas; fêmures posteriores um pouco mais grossos na metade apical; cerdas e pêlos curtos.

Asas não ultrapassando o ápice do abdomen; R_{2-3} , R_4 e R_5+M_1 terminando na R_1 ; M_2 terminando em R_5+M_1 ; M_{3-4} terminando na borda da asa; célula anal com um longo peciolo.

Abdomen fusiforme, com oito segmentos, além da genitália, a qual na ♀ apresenta duas fileiras, cada uma com sete grossos espinhos.

Genótipo: *Megascelus nigricornis* Philippi, 1865, por designação original.

Megascelus nigricornis Philippi

Megascelus nigricornis Philippi, 1865, Verh. Zool.-bot. Ges. Wien, 15:683.

♀. — Comprimento do corpo 13 mm; da asa 9 mm.

Cabeça preta; fronte com esparsa pruinoseidade branca e pilosidade preta; occipício revestido de densa pruinoseidade cinza e esparsa pilosidade preta; peças bucais com pilosidade preta; face revestida de pruinoseidade amarelada; palpos castanhos-escuros

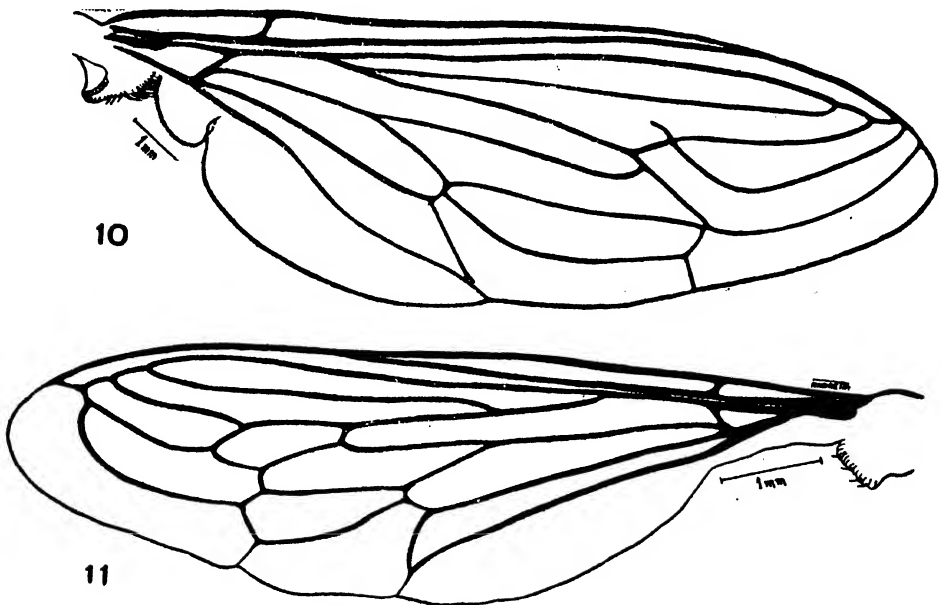


Fig. 10. *Paramydas igniticornis*, asa. — Fig. 11. *Megascelus nigricornis*, asa.

com alguns pêlos pretos; antenas (fig. 7) pretas, com pruina esbranquiçada, nos dois primeiros artículos com pilosidade preta.

Tórax preto; mesonoto com pruinoseidade esbranquiçada, formando quatro faixas longitudinais que se fundem na frente do escutelo; pilosidade preta e esparsa; escutelo preto, com alguma pruinoseidade esbranquiçada dorsal e fina pilosidade preta marginal; região pós-escutelar preta, com pêlos pretos laterais; pleuras pretas, com pruinoseidade esbranquiçada e esparsa pilosidade preta, mais longa sobre a "metapleura".

Pernas (fig. 8): coxas e trocânteres pretos, com pilosidade preta; fêmures e tíbias amarelo-avermelhados, com alguma pilosidade preta nos fêmures anteriores, medianos e tíbias posteriores; a pilosidade restante é amarelo-avermelhada; cerdas pequenas e dessa mesma cor; os três primeiros tarsos amarelo-aver-

melhados, os dois últimos pretos; nas pernas anteriores e medianas a pilosidade preta se encontra no ápice do quarto artí-
culo e sobre os artículos restantes; pilosidade dos tarsos poste-
riores preta; cerdas curtas e amarelas.

Asas (fig. 11) amareladas, mais intensa ao longo das ner-
vuras, com rugas transversais; nervuras pretas, exceto na base
da asa, onde são amareladas; álula reduzida; esquâmula com
algumas pequenas cerdas na margem; halteres branco-amarela-
dos, exceto na base do pedúnculo que é de cor castanha.

Abdomen preto, liso e brilhante; a borda posterior do se-
gundo ao sétimo segmentos branco-amarelado-brilhante; esta co-
loração se verifica também nos esternitos, exceto no sexto e sé-
timo que são inteiramente pretos; pilosidade preta e esparsa, um
pouco mais longa no primeiro tergito e em todos os esternitos.
Genitália (fig. 9) com pêlos amarelados e espinhos de cor aver-
melhada.

Material examinado: — Duas ♀♀, Nos. 111.182 e 111.183
da coleção do Depto. Zool. Secret. Agric., com a seguinte pro-
cedência: Chile, Santiago, Canelo, Dezembro de 1944 (T.
Ramirez).

Abstract

A new genus of *Mydidae* from Chile is described in the present
paper; a redescription of *Megascelus* (*Apioceratidae*) is given as well
as redescrptions of the type species of both genera.

The new genus, named *Paramydas*, is erected for *Mydas igniticornis*
Bigot, 1857, a species considered by Schiner and subsequent authors as
a synonym of *Mydas apicalis* Wied., 1829, which is here considered as
a distinct Brazilian species.

Paramydas is distinguished from *Mydas* F., 1794, by the short
antennae, twice as long as the length of the head, by the manner in
which $R_5 + M_1$ and M_2 end in the costal vein, and by the punctuation
on the tegument of the abdomen.

From *Apiophora* Phil., 1865, our new genus can be distinguished by
the fringe of scales on the squama. In Philippi's figure for *A. paulseni*
the venation is somewhat different, and according to Schiner (1868),
the female of this species has spinose genitalia.

Lampromydas Séguy, 1928, is different in its venation and smooth
abdomen, and *Miltinus* Gerst., 1868, is characterized by a crown of
spines on the female genitalia.

Bibliografia .

- Bigot, M. J., 1857, Diptères nouveaux provenant du Chili. — Ann. Soc.
Ent. France (3), 5:288.
Cazier, A. Mont, 1941, A generic review of the Family Apioceratidae
with a revision of the North American species (Diptera-Brachycera).
— Amer. Midland Nat. 25:589-631.

- Curran, C. H., 1934, Fam. Gen. N. Amer. Dipt. — The Ballou Press, N. Y. Mydidae, pp. 163-165.
- Fabricius, J. C., 1794, Ent. Syst. 4:252.
- Gerstaecker, A., 1868, Systematische Uebersicht der bis jetzt bekannt gewordenen Mydiden (Mydasii Latr.). — Stett. Ent. Zeitg. 29:65-103.
- Hardy, G. H., 1942, Miscellaneous notes on Australian Diptera IX. Superfamily Asiloidea. — Proc. Linn. Soc. N. S. W., 67:197-204.
- Hermann, F., 1909, Beitrag zur Kenntnis der Apioceriden (Dipt.). — Deutsch. Ent. Zeitschr., 1909, Beiheft pp. 104-122.
- Kertész, C., 1909, Cat. Dipt., Mus. Nat. Hung. 4:47-49.
- Macquart, J., 1848, Dipt. Exot. Suppl. 3:18.
- Paramonow, S. J., 1948, Ueber die richtige Stellung der Gattungen Dolichogaster Macq. (Mydidae) und Megascelus (Apioceridae) (Diptera). — Rev. Ent., Rio de Janeiro, 19:357-360.
- Philippi, R. A., 1865, Aufzählung der chilenischen Dipteren. — Verh. Zool.-bot. Ges. Wien, 15:682-684.
- Reed, E. & Ruiz, F. P., 1941, Nuevas especies de Mydidae de Chile (Dipt.). — Rev. Ent., Rio de Janeiro, 12:487-493.
- Röder, V. von, 1883, Bemerkungen über Dolichogaster brevicornis Wied. und Nemestrina albofasciata Wied. — Stett. Ent. Zeitg. 44:426-427.
- Schiner, J. R., 1868, Reise der Novara, Diptera, pp. 153-154.
- Séguy, E., 1928, Etude sur quelques Mydidae nouveaux ou peu connus. — Encycl. Ent. Diptera, 4:129-156.
- 1938, Etude sur quelques Mydidae du Chili. — Rev. Chilena Hist. Nat. 42:266-275.
- Stuardo Ortiz, C., 1946, Cat. Dipt. Chile. — Ministerio de Agricultura, Santiago, Mydidae 78, Apioceridae 87.
- Walker, F., 1854, List. Dipt. Brit. Mus. Part VI, Suppl. 2:365.
- Westwood, J. O., 1845, Arcana Entomologica, 1:49-56.
- Wiedemann, C. R. G., 1829, Monographia Generis Midarum. — Nova Acta Acad. Nat. Cur. 15:20-56, 3 Pls.
- Williston, S. W., 1908, Manual N. Amer. Dipt. — Ed. III, New Haven, Mydidae, pp. 190-191.

"Zoological Record": Part Insecta (Volume 83, 1946).

There has been a very serious delay in the publication of the 1946 volume of the "Zoological Record", Part Insecta, indispensable to all entomologists. According to an information received from the Director of the Commonwealth Institute of Entomology (41, Queen's Gate, London, S.W. 1), "this has been due to the fact that it has been held up for a long time owing to difficulties in the printing trade. As regards the 1947 volume, I am afraid that that cannot possibly be out until the middle of next year at the very earliest but we shall endeavour to get it out at the earliest possible date". The present volume has 380 pages and contains 2857 titles. The price has increased from 15s. 6d. to 20s. 6d.

T. B.

Berichtigung.

In meiner Arbeit "Neue Hispinae aus Suedamerika" (Rev. de Ent., vol. 19, Juni 1948), ist auf S. 223 ein Irrtum zu berichtigen. Fig. 12 stellt *Baliosus indutus* Uh. dar und in der Figurenerklaerung muss diese Angabe noch eingeschoben werden, sodass die folgenden Fig. 12-18 je um eins erhoehrt werden muessen, also Fig. 13-19 darstellen.

E. U h m a n n.

J. Douglas Hood: Bibliography of Scientific Papers.

By J. Douglas Hood, Cornell University, Ithaca, N. Y.

1908.

1. New Genera and Species of Illinois Thysanoptera. — [Bull. Ill. State Lab. Nat. Hist., Vol. VIII, Art. II, pp. 361-379, Figs. 1-9. Issued Aug. 22, 1908.]
2. Three New North American Phloeothripidae. — [Can. Ent., Vol. XL, No. 9, pp. 305-309, Figs. 15-18. Mailed Sep. 3, 1908.]
3. Two New Species of *Idolothrips*. — [Ann. Ent. Soc. Amer., Vol. I, No. 4, pp. 285-289, Figs. 9, 10. Dec., 1908.]

1909.

4. Two New North American Phloeothripidae. — [Ent. News, Vol. XX, No. 1, pp. 28-32, Figs. 1-4. Jan., 1909.]
Corrections. — [Ent. News, Vol. XX, No. 2, p. 75. Feb., 1909.]
5. A New Genus and a New Species of North American Phloeothripidae (Thysanoptera). — [Ent. News, Vol. XX, No. 6, pp. 249-252, Fig. 1. June, 1909.]

1912.

6. Three New Phloeothripidae (Thysanoptera) from Texas and Michigan. — [Proc. Biol. Soc. Wash., Vol. XXV, pp. 11-16, Figs. 1-4. Mar. 19, 1912.]
7. New Genera and Species of North American Thysanoptera from the South and West. — [Proc. Biol. Soc. Wash., Vol. XXV, pp. 61-76, Pl. IV, and Figs. 1-6. April 13, 1912.]
8. On North American Phloeothripidae (Thysanoptera), with Descriptions of two New Species. — [Can. Ent., Vol. XLIV, No. 5, pp. 137-144, Pls. VI, VII. May 8, 1912.]
9. A New Genus and three New Species of North American Thysanoptera. — [Psyche, Vol. XIX, No. 4, pp. 113-118, Pls. 8, 9. Aug., 1912.]
10. Descriptions of New North American Thysanoptera. — [Proc. Ent. Soc. Wash., Vol. XIV, No. 3, pp. 129-160, Pls. IV-VIII. Sep. 30, 1912.]

1913.

11. Nine New Thysanoptera from the United States. — [Proc. Biol. Soc. Wash., Vol. XXVI, pp. 161-166. June 30, 1913.]

12. Two New Thysanoptera from Porto Rico. — [Ins. Insc. Menstr., Vol. I, No. 6, pp. 65-70, Pl. I. June 30, 1913.]
13. On a Collection of Thysanoptera from Panama. — [Psyche, Vol. XX, No. 4, pp. 119-124, Figs. 1-4. Aug., 1913.]
14. A New Species of *Heliothrips* (Thysanoptera) from Maryland and Illinois. — [Can. Ent., Vol. XLV, No. 9, pp. 308-311, Figs. 11, 12. Sep. 12, 1913.]
15. On a Collection of Thysanoptera from Porto Rico. — [Ins. Insc. Menstr., Vol. I, No. 12, pp. 149-154, Pl. V. Dec. 31, 1913.]

1914.

16. Notes on the Life History of *Rhopalosoma poeyi* Cresson. [Proc. Ent. Soc. Wash., Vol. XV, No. 4, pp. 145-147, Fig. 1. Jan. 22, 1914.]
17. *Prosopothrips cognatus*, a New North American Thysanopteron. — [Can. Ent., Vol. XLVI, No. 2, pp. 57-59, Fig. 13. Feb., 1914.]
18. Notes on North American Thysanoptera, with Descriptions of a New Family and two New Species. — [Ins. Insc. Menstr., Vol. II, No. 2, pp. 17-22, Pl. I. Feb. 28, 1914.]
19. Two Porto Rican Thysanoptera from Sugar Cane. — [Ins. Insc. Menstr., Vol. II, No. 3, pp. 38-41, Fig. 1. Mar. 30, 1914.]
20. [A Note on *Frankliniella insularis*.] — [Proc. Ent. Soc. Wash., Vol. XVI, No. 1, p. 29. March 23, 1914.]
21. On the Proper Generic Names for Certain Thysanoptera of Economic Importance. — [Proc. Ent. Soc. Wash., Vol. XVI, No. 1, pp. 34-44. March 23, 1914.]
22. Two New Thysanoptera from Panama. — [Ins. Insc. Menstr., Vol. II, pp. 49-53, Figs. 1, 2. April 24, 1914.]
23. Studies in Tubuliferous Thysanoptera. — [Proc. Biol. Soc. Wash., Vol. XXVII, pp. 151-172, Pls. III-V. Aug. 13, 1914.]

1915.

24. A Remarkable New Thrips from Australia. — [Proc. Biol. Soc. Wash., Vol. XXVIII, pp. 49-51, Fig. 3. Mar. 12, 1915.]
25. An Outline of the Subfamilies and Higher Groups of the Insect Order Thysanoptera. — [Proc. Biol. Soc. Wash., Vol. XXVIII, pp. 53-60. Mar. 12, 1915.]

26. On Some American Aeolothripidae (Thysanoptera). — [Ent. News, Vol. XXVI, No. 4, pp. 162-166, Figs. a, b. Mar. 31, 1915.]
 27. Descriptions of New American Thysanoptera. — [Ins. Insc. Menstr., Vol. III, Nos. 1-4, pp. 1-40, Pls. I, II. May 5, 1915, separates distributed; May 15, quadruple number of periodical issued.]
 28. *Hoplothrips corticis*: A Problem in Nomenclature. — [The Ent., 1915, pp. 102-107. May, 1915.]
 29. New Thysanoptera from Florida and Louisiana. — [Journ. N. Y. Ent. Soc., Vol. XXIII, No. 2, pp. 121-138, Pls. 7-10. June, 1915.] By J. DOUGLAS HOOD and C. B. WILLIAMS.
 30. A New *Hoplandrothrips* (Thysanoptera) from British Guiana. — [Can. Ent., Vol. XLVII, No. 8, pp. 241-244, Fig. 26. Aug. 14, 1915.]
 31. An Interesting Case of Antennal Antigeny in Thysanoptera. [Proc. Ent. Soc. Wash., Vol. XVII, No. 3, pp. 128-132, Pl. XV. Sep. 18, 1915.]
 32. Two New Species of *Liothrips* (Thysanoptera). — [Bull. Brooklyn Ent. Soc., Vol. X, No. 4, pp. 76-79. Oct., 1915.]
- 1916.
33. A New Species of *Heterothrips* (Thysanoptera) from Eastern United States. — [Ent. News, Vol. XXVII, No. 3, pp. 106-108. March 1, 1916.]
 34. A New *Physothrips* (Thysanoptera) from Uganda, with a Note on *Physothrips antennatus* Bagnall. — [Can. Ent., Vol. XLVIII, No. 4, pp. 130-132, Fig. 3. April 10, 1916.]
 35. Two New Thysanoptera from West Africa, with a Note on the Synonymy of the Phloeothripidae. — [Psyche, Vol. XXIII, No. 1, pp. 6-12, Pl. IV, Figs. 1-7. Feb., 1916.]
 36. Descriptions of New Thysanoptera. — [Proc. Biol. Soc. Washington, Vol. XXIX, pp. 109-124, Pl. III, Figs. 1-4. June 6, 1916.]
 37. *Edaleothrips hookeri*, a New Genus and Species of Thysanoptera. — [Bull. Brooklyn Ent. Soc., Vol. XI, No. 3, pp. 64, 65, Pl. 2, Figs. 1-3. June, 1916.]
 38. A Synopsis of the Genus *Oxythrips* Uzel (Thysanoptera). — [Ins. Insc. Menstr., Vol. IV, Nos. 4-6, pp. 37-44. July 18, 1916.]
 39. A New *Plectrothrips* (Thysanoptera) from Jamaica. — [Ins. Insc. Menstr., Vol. IV, Nos. 7-9, pp. 78-80, Pl. I. October 23, 1916.]

1917.

- 40. A New *Sericothrips* (Thysanoptera) from Africa. — [Bull. Brooklyn Ent. Soc., Vol. XII, No. 2, pp. 32-34. April, 1917.]
- 41. An Annotated List of the Thysanoptera of Plummer's Island, Maryland. — [Ins. Insc. Menstr., Vol. V, Nos. 4-6, pp. 53-65. June 2, 1917.]

1918.

- 42. A New *Physothrips* from Western Africa (Thysanoptera). — [Ins. Insc. Menstr., Vol. VI, Nos. 4-6, p. 116. April 10, 1918.]
- 43. A New *Kleothrips* (Thysanoptera) from North Queensland. — [Bull. Brooklyn Ent. Soc., Vol. XIII, No. 4, pp. 77-79, Pl. 8. Oct., 1918.]
- 44. New Genera and Species of Australian Thysanoptera. — [Memoirs of the Queensland Museum, Vol. VI, pp. 121-150. December 19, 1918.]

1919.

- 45. On some new Idolothripidae (Thysanoptera). — [Ins. Insc. Menstr., Vol. VII, Nos. 4-6, pp. 66-74, Pl. II. April 1, 1919.]
- 46. On some new Thysanoptera from Southern India. — [Ins. Insc. Menstr., Vol. VII, Nos. 4-6, pp. 90-103, Pls. III and IV. April 1, 1919.]
- 47. Two new genera and thirteen new species of Australian Thysanoptera. — [Proc. Biol. Soc. Washington, Vol. 32, pp. 75-92. May 20, 1919.]

1924.

- 48. A new *Ankothrips* (Thysanoptera) from New Mexico. — [Bull. Brooklyn Ent. Soc., Vol. XIX, pp. 66-68. May 28, 1924.]
- 49. A new *Sericothrips* (Thysanoptera) injurious to cotton. — [Can. Ent., Vol. LVI, No. 6, pp. 149-150. June 26, 1924.]
- 50. New Thysanoptera from the United States. — [Ent. News, Vol. XXXV, No. 9, pp. 312-317. November 5, 1924.]

1925.

- 51. On some new Phloeothripidae (Thysanoptera) from the Transvaal. — [Psyche, Vol. XXXI, No. 6, pp. 293-301. January, 1925.]

52. Four new Thysanoptera from Africa. — [Proc. Ent. Soc. Wash., Vol. 27, No. 1, pp. 8-12. February 10, 1925.]
53. Four new Phloeothripidae (Thysanoptera) from New York. — [Bull. Brooklyn Ent. Soc., Vol. XX, No. 1, pp. 26-32. Feb. 25, 1925.]
54. New Neotropical Thysanoptera collected by C. B. Williams. — [Psyche, Vol. XXXII, No. 1, pp. 48-69. April, 1925.]
55. New species of *Frankliniella* (Thysanoptera). — [Bull. Brooklyn Ent. Soc., Vol. XX, No. 2, pp. 71-83, Figs. 1-12. April 14, 1925.]
56. Six new Thysanoptera from the western United States. — [Ent. News, Vol. XXXVI, pp. 101-105 and 134-138. March 30 and May 1, 1925, respectively.]
57. New species of *Taeniothrips* (Thysanoptera) from Africa. — [The Ent., Vol. LVIII, pp. 132-139. June, 1925.]
58. Notes on New York Thysanoptera, with descriptions of new genera and species. I. — [Bull. Brooklyn Ent. Soc., Vol. XX, No. 3, pp. 124-131, Figs. 1-8. Aug. 14, 1925.]
59. Four new Phloeothripidae from the United States (Thysanoptera). — [Can. Ent., Vol. LVII, pp. 218-222. Sept. 2, 1925.]

1926.

60. Thysanoptera [from "A preliminary biological survey of the Lloyd-Cornell Reservation near McLean, N. Y."] — [Bull. Lloyd Library, Ent. Ser., No. 5, p. 94. 1926.]

1927.

61. *Gryllus domesticus* Linn. as a household pest in Rochester, N. Y. (Orthoptera: Gryllidae). — [Proc. Ent. Soc. Wash., Vol. 29, pp. 22-23. Feb. 23, 1927.]
62. Nineteen synonyms in the North American Thysanoptera. — [Ent. News, Vol. XXXVIII, pp. 112-113. April 8, 1927.]
63. A synopsis of the Thysanopterous Family Urothripidae. By J. Douglas Hood and C. B. Williams. — [Ann. Ent. Soc. Amer., Vol. XX, pp. 1-8, Pls. I-II. April 22, 1927.]
64. On the synonymy of some Thysanoptera occurring in California. — [Pan-Pacific Entomologist, Vol. III, pp. 173-178, fig. f. June 9, 1927.]
65. A contribution toward the knowledge of New York Thysanoptera, with descriptions of new genera and species. II. — [Ent. Amer., Vol. VII, pp. 209-245, Pls. XX, XXI. June 14, 1927.]

66. Three new Phlaeothripidae (Thysanoptera) from the District of Columbia. — [Proc. Ent. Soc. Washington, Vol. 29, No. 5, pp. 111-116, Pl. 5, figs. 1-7. July 11, 1927.]
67. New Thysanoptera from the United States. — [Journ. N. Y. Ent. Soc., Vol. XXXV, pp. 123-142, Pls. XIII and XIV. July 26, 1927.]
68. A blood-sucking Thrips. — [The Entomologist, Vol. LX, p. 201. 1927.]
69. New Western Thysanoptera. — [Proc. Biol. Soc. Washington, Vol. 40, pp. 197-204. Dec. 2, 1927.]

1928.

70. A list of the insects of New York: Order Thysanoptera. By J. DOUGLAS HOOD and GLENN W. HERRICK. — [Memoir 101, Cornell Univ. Agr. Exp. Sta., pp. 66-72. January, 1928.]
71. New Neotropical Thysanoptera collected by C. B. Williams. II. — [Psyche, Vol. XXXIV, No. 6, pp. 230-246. March, 1928.]
72. A new *Actinothrips* (Thysanoptera) from Brazil. — [Bull. Brooklyn Ent. Soc., Vol. XXIII, No. 3, pp. 147-150, fig. 1. Aug. 17, 1928.]

1930.

73. Two Urothripidae (Thysanoptera) from Florida, with keys to the known genera and the North American species. — [Bull. Brooklyn Ent. Soc., Vol. XXIV, No. 5, pp. 314-322; Pl. XXIX. January 6, 1930.]

1931.

74. A new genus and species of *Æolothripidae* (Thysanoptera) from Chile. — [Bull. Brooklyn Ent. Soc., Vol. XXVI, No. 1, pp. 1-3; Fig. 1. April 2, 1931.]
75. The Giant Katydid (*Stilpnochlora coulouiana* Saussure) in Monroe County, New York. [By J. DOUGLAS HOOD and HELEN M. HINCHER]. — [Bull. Brooklyn Ent. Soc., Vol. XXVI, No. 1, p. 20. April 2, 1931.]
76. Synonyms in the North American Thysanoptera. — [Pan-Pacific Ent., Vol. VII, No. 4, pp. 170-172. April, 1931.]
77. *Cicindela unipunctata* Fabricius in New York State. — [Bull. Brooklyn Ent. Soc., Vol. XXVI, No. 3, p. 139. October 29, 1931.]

78. Notes on New York Thysanoptera, with descriptions of new genera and species. III. — [Bull. Brooklyn Ent. Soc., Vol. XXVI, No. 4, pp. 151-170; Pls. VII and VIII. December 8, 1931.]

1932.

79. Tergo-sternal muscles in the Thysanoptera. [By J. DOUGLAS HOOD and SABRA J. HOOK]. — [Bull. Brooklyn Ent. Soc., Vol. XXVII, No. 1, pp. 1-6; Pls. I-III. March 31, 1932.]
80. A new *Thrips* from Plummer's Island, Maryland. — [Proc. Ent. Soc. Washington, Vol. 34, No. 3, pp. 37-40; Pl. 5. April 1, 1932.]
81. Notes on Some New York Odonata. — [Ent. News, Vol. XLIII, No. 5, pp. 128-132, May 12, 1932.]
82. New species of the genus *Thrips* from Central Africa and Egypt. — [Bull. Soc. Roy. Ent. d'Egypte, 1932, Fasc. 3, pp. 115-140, Pls. III-XI. 1932.]

1933.

83. *Rhabdothrips albus*, a new genus and species of Thysanoptera from Panama. — [Proc. Ent. Soc. Washington, Vol. XXXV, No. 4, pp. 45-48, Pl. 3. April 21, 1933.]
84. Three new Urothripidae from Panama. — [Proc. Biol. Soc. Washington, Vol. 46, pp. 213-216. November 20, 1933.]
85. *Notothrips folsomi*, a new genus and species of Thysanoptera from the United States. — [Proc. Ent. Soc. Washington, Vol. 35, No. 9, pp. 200-205, Pls. 9, 10. Dec. 27, 1933.]

1934.

86. Three new species of *Thrips* Linné from the western United States. — [Pan-Pacific Ent., Vol. IX, No. 4, pp. 173-182, Cuts 1-3. Jan. 21, 1934.]
87. New Thysanoptera from Panama. — [Journ. N. Y. Ent. Soc., Vol. XLI, No. 4, pp. 407-434. Feb. 6, 1934.]
88. Some further new Thysanoptera from Panama. — [Proc. Biol. Soc. Washington, Vol. 47, pp. 57-81. Feb. 9, 1934.]
89. A new *Eurythrips* (Thysanoptera) from Trinidad. — [Psyche, Vol. XLI, No. 1, pp. 1-5, Pl. I; April, 1934.]
90. A new *Macrophthalthrips* (Thysanoptera) from Tanganyika. — [Stylops, Vol. III, Part 4, pp. 84-87, figs. 1-3. April 14, 1934.]

91. Two new genera and species of Phlaeothripidae (Thysanoptera). — [Proc. Ent. Soc. Wash., Vol. 36, No. 5, pp. 111-120, pl. 17 & 18. May 25, 1934.]

1935.

92. Ten new Thysanoptera from Panama. — [Proc. Biol. Soc. Wash., Vol. 48, pp. 83-106, Pl. IV, Figs. 1-5. May 3, 1935.]
93. Five new Thysanoptera of the genus *Æolothrips*. — [Trans. Amer. Ent. Soc., Vol. LXI, pp. 103-110, Pl. III. June 19, 1935.]
94. Some new or little-known Thysanoptera of the Family Phlaeothripidae. — [Rev. de Entomologia, Vol. 5, fascicle 2, pp. 159-199, Figs. 1-8. June 26, 1935.]
95. Eleven new Thripidae (Thysanoptera) from Panama. — [Journ. N. Y. Ent. Soc., Vol. XLIII, pp. 143-171, Pls. XI and XII. June 27, 1935.]
96. A note on heterogony in the Thysanoptera, with descriptions of two new species from Tanganyika. — [Stylops, Vol. IV, Part 9, pp. 193-201, Figs. 1-3. September 14, 1935.]
97. The Thysanopterous genus *Actinothrips*. — [Stylops, Vol. IV, Part 11, pp. 247-254, Figs. 1, 2. November 15, 1935.]

1936.

98. *Frankliniella gossypiana*, new name. — [Proc. Biol. Soc. Washington, Vol. 49, p. 68. May 1, 1936.]
99. Two new Thysanoptera from the United States. — [Psyche, Vol. XLIII, No. 1, pp. 1-9, Figs. 1 and 2. May 28, 1936.]
100. Nine new Thysanoptera from the United States. — [Journ. N. Y. Ent. Soc., Vol. XLIV, pp. 81-100, Fig. 1. June 25, 1936.]
101. Two new *Anactinothrips* from South America (Thysanoptera). — [Proc. Roy. Ent. Soc. Lond., Ser. B, No. 5, pp. 143-147, Fig. 1. July 15, 1936.]
102. Studies in Neotropical Thysanoptera. I. — [Rev. de Ent., Vol. 6, Fasc. 2, pp. 248-279, Figs. 1-4. July 15, 1936.]
103. Studies in Neotropical Thysanoptera. II. — [Rev. de Ent., Vol. 6, Fasc. 3-4, pp. 424-460, Figs. 1-5. Oct. 30, 1936.]

1937.

104. New genera and species of Thysanoptera from South America. — [Ann. and Mag. of Nat. Hist., Ser. 10, Vol. XIX, pp. 97-113, Figs. 1-3. 1937.]

105. On some Thysanoptera from American conifers. — [Ent. News, Vol. XLVIII, No. 3, pp. 74-80, Figs. *a* and *b*. March 12, 1937.]
 106. Studies in Neotropical Thysanoptera. III. — [Rev. d. Ent., Vol. 7, fasc. 1, pp. 96-115, Figs. 1-2. March 30, 1937.]
 107. A new *Melanthrips* (Thysanoptera) from South Africa. — [Ent. Mo. Mag., Vol. LXXIII, pp. 154-156, Fig. 1. July, 1937.]
 108. Studies in Neotropical Thysanoptera. IV. — [Rev. d. Ent., Vol. 7, fasc. 2-3, pp. 255-296, Figs. 1-7. July 24, 1937.]
 109. A new ant-like thrips from Florida. — [Proc. Biol. Soc. Washington, Vol. 50, pp. 111-114. August 7, 1937.]
 110. Studies in Neotropical Thysanoptera. V. — [Rev. d. Ent., Vol. 7, fasc. 4, pp. 486-530, Figs. 1-9. October 11, 1937.]
 111. A new *Euoplothrips* (Thysanoptera) from the Solomon Islands. — [Ann. and Mag. Nat. Hist., Ser. 10, Vol. XX, pp. 599-604, Figs. Dec. 1937.]
- 1938.
112. A new subgenus and species of Thysanoptera from the Cameroons. — [Proc. Biol. Soc. Washington, Vol. 51, pp. 11-14. Feb. 18, 1938.]
 113. A new genus and species of Phlaeothripidae (Thysanoptera) from palmetto. — [Proc. Biol. Soc. Washington, Vol. 51, pp. 27-32. Feb. 18, 1938.]
 114. A new *Chirothrips* (Thysanoptera) from Cyprus. — [Ent. Mo. Mag., Vol. LXXIV, pp. 56-59, Fig. 1. March, 1938.]
 115. Studies in Neotropical Thysanoptera. VI. — [Rev. d. Ent., Vol. 8, fasc. 1-2, pp. 161-187. Figs. 1-3. March 26, 1938.]
 116. New Thysanoptera from Florida and North Carolina. — [Rev. d. Ent., Vol. 8, fasc. 3-4, pp. 348-420. June 25, 1938.]
 117. On some European species of *Chirothrips* (Thysanoptera). — [Ent. Mo. Mag., Vol. LXXIV, pp. 158-164, Figs. 1-2. July, 1938.]
 118. Order Thysanoptera, Thrips. — [N. Carolina State List of Insects, Dept. Agr., Raleigh, pp. 55-58. Reprints distributed September 20, 1938.]
 119. Nine new Thysanoptera from North America. — [Amer. Midland Nat., Vol. 20, No. 2, pp. 354-367. September, 1938.]

120. Studies in Neotropical Thysanoptera. VII. — [Rev. d. Ent., Vol. 9, fasc. 1-2, pp. 218-247. September 27, 1938.]
122. Studies in Neotropical Thysanoptera. VIII. — [Rev. d. Ent., Vol. 9, fasc. 3-4, pp. 404-426. December 31, 1938.]

1939.

121. Seven new Phlaeothripidae from the United States. — [Bull. Brooklyn Ent. Soc., Vol. XXXIII, No. 5, pp. 205-218. January 13, 1939.]
123. A new *Polyphemothrips* (Thysanoptera) from Peru. — [Rev. Chilena d. Hist. Nat., Vol. 42 (1938), pp. 217-220, Fig. 20, a-b. 1939.]
124. Notes on *Chirothrips*, with descriptions of two new species (Thysanoptera). — [Rev. d. Ent., Vol. 10, fasc. 2, pp. 461-471. September 4, 1939.]
125. New North American Thysanoptera, principally from Texas. — [Rev. d. Ent., Vol. 10, fasc. 3, pp. 550-619. December 22, 1939.]

1940.

126. A century of new American Thysanoptera I. — [Rev. d. Ent., Vol. 11, fasc. 1-2, pp. 540-583, fig. 1. June 28, 1940.]
127. *Organothrips bianchii*, a new Hawaiian thrips from Taro. — [Proc. Hawaiian Ent. Soc., Vol. X, No. 3, pp. 423-427, Pl. XXIV. Aug. 1940.]
128. Two new Heliothripinae (Thysanoptera) from the Transvaal. — [Journ. Ent. Soc. So. Afr., Vol. III, pp. 35-41, Fig. 1, a and b. Sept., 1940.]
129. La Causa y el Significado del Macropterismo y Braquipterismo en Ciertos Tisanópteros, y Descripción de una Nueva Especie Mexicana. — [An. Esc. Nac. Cien. Biol., Vol. I, Nos. 3-4, pp. 497-505, Figs. 1, 2. 1940.]
130. Un nuevo *Teuchothrips* (Insecta Thysanoptera) procedente de México. — [An. Esc. Nac. Cien. Biol., Vol. I, Nos. 3-4, pp. 507-512, Pl. 76. 1940.]

1941.

131. A century of new American Thysanoptera. II. — [Rev. d. Ent., Vol. 12, fasc. 1-2, pp. 139-243, figs. 1-11. July 31, 1941.]

1942.

132. A century of new American Thysanoptera. III. — [Rev. d. Ent., Vol. 13, fasc. 3, pp. 547-678, figs. 12-16. Jan. 31, 1942.]

Notes on the Tropical American Species of Tipulidae (Diptera). V. The Specialized Hexatomini: *Limnophila*, *Shannonomyia*, *Gynoplistia*, *Hexatoma*, *Atarba*, *Elephantomyia*, and Allies.

By Charles P. Alexander, University of Massachusetts,
Department of Entomology, Amherst, Massachusetts.

(With 36 figures)

In part IV under this general title I discussed the so-called primitive Hexatome crane-flies, including those genera having the arculus broken, and by their organization and other factors indicating that they were the more generalized members of the tribe. The accompanying treatment considers the remaining genera, at least two of which, *Atarba* and *Elephantomyia*, are so aberrant, that their assignment to their present position must be considered somewhat provisional.

The following subtribes, genera and subgenera fall within the limits of the present report.

Subtribes	Genera	Subgenera
Limnophilaria (continued from Part IV)	<i>Ctenolimnophila</i> Alex.: <i>Mesolimnophila</i> Alex. <i>Limnophila</i> Macquart: <i>Shannonomyia</i> Alex. <i>Pilaria</i> Sintonis <i>Gynoplistia</i> Westwood:	<i>Ctenolimnophila</i> Alex. <i>Campbellomyia</i> Alex. <i>Abitagua</i> Alexander <i>Limnophila</i> Macquart <i>Araucolimnophila</i> Alex. <i>Roraimomyia</i> Alex. <i>Gynoplistia</i> Westw. <i>Dirhipis</i> Enderlein <i>Paralimnophila</i> Alex. <i>Eriocera</i> Macquart <i>Cladolipes</i> Loew <i>Atarba</i> Osten Sacken <i>Ischnothrix</i> Bigot <i>Elephantomyia</i> O. Sack. <i>Elephantomyia</i> Alex.
Hexatomaria	<i>Hexatoma</i> Latreille:	
Atarbaria	<i>Atarba</i> Osten Sacken:	
Elephantomyaria	<i>Elephantomyia</i> O. Sack.:	

Ctenolimnophila Alexander

Ctenolimnophila Alexander; Proc. Acad. Nat. Sci. Philadelphia 1921: 61; 1921; (type *blvena* Alexander).

Subgenus *Campbellomyia* Alexander

Gnophomyia (*Campbellomyia*) Alexander; Ann. Mag. Nat. Hist., (9) 16: 70-71; 1925; (type *alpina* Alexander).

Subgenus *Abitagua* Alexander

Ctenolimnophila (*Abitagua*) Alexander; Ann. Ent. Soc. America, 37: 315; 1944 (type *longifusa* Alexander).

Small to medium sized flies having the general appearance of the Eriopterine genus *Gnophomyia*. Antennae in typical subgenus short in both sexes, 16-segmented; flagellar segments oval,

decreasing in size outwardly; verticils distinct, especially on the outer segments. In *Abitagua* antennae 15-segmented, the basal five flagellar segments united into a fusion-segment. Vertex broad, anterior vertex with a small tubercle. Praescutum narrowed anteriorly, produced slightly cephalad over the pronotum; meron reduced, the middle and hind coxae approximated. Legs with the tibial spurs distinct in the local species; claws long and simple; tarsi variable in length, in cases long and normal, as in the subgenus *Abitagua*, where the basitarsus is approximately two-thirds the tibia and the entire tarsus is subequal in length to the tibia. In the other subgenera and species, the tarsi are much shorter, in species such as *fuscoanalis* the entire tarsus being less than one-fifth the length of the tibia. In the subgenus *Campbellomyia*, as it occurs in New Zealand where it is well represented, the tibial spurs may be present and long, at least on the posterior legs, in *pallipes* Alexander; reduced to small hairy spurs, in the subgenotype *alpina*; lacking in the other species.

Wings (Figs. 1-4) with Sc moderately long, Sc_1 ending approximately opposite the fork of Rs , Sc_2 near its tip; Rs three-branched; R_{2-3-4} short to very short, less than R_{2-3} (as in *bivena*, Fig. 1; *decisa*, *paulistae*, and others); or longer (*severa*, Fig. 2) where it slightly exceeds R_{2-3} ; very long in *neolimnophiloides* (Fig. 3) and *longifusa* (Fig. 4) where it is subequal in length to the entire anterior branch of Rs ; R_2 usually present (Figs. 1, 2), subequal to R_{1-2} ; lacking in *neolimnophiloides* and *Abitagua* (Figs. 3, 4). Media three-branched, cell M_1 lacking; cell 1st M_2 short-rectangular to elongate; in *Ctenolimnophila*, s. s., irregular in outline (Fig. 1), with m much shorter than the basal section of M_3 ; $m-cu$ variable, from near the base of cell 1st M_2 to nearly opposite midlength (as in *Abitagua*, Fig. 4). In the typical subgenus with a supernumerary crossvein in cell R_3 (*decisa*, *fuscoanalis*) or with two such veins (*bivena*, Fig. 1), in cells R_3 and R_4 ; anterior arculus usually preserved, broken in some species (as *Abitagua*, Fig. 4).

Male hypopygium (as typified by *bivena*) with the outer dististyle heavily sclerotized, the outer margin with a series of long spines on outer half, the general appearance thus much as in *Atarba*. Interbases appearing as small curved blades, the tips pale and setuliferous. Phallosome small, consisting of more elongate flattened blades, their tips divergent. In *severa*, the interbases are long and conspicuous, the tips with long setae; elements of the phallosome more reduced. The highly aberrant

Abitagua has the hypopygium more complex though conforming in its general features; interbases lacking; gonapophyses appearing as powerful clubs that terminate in strong spinous points. It may be noted that in the original description of this subgenus, the position of the two dististyles of the unique type seem to have been twisted and reversed on the microscope slide and what was considered as being the inner style seems more properly the outer one, thus better conforming to the nature of the two dististyles found elsewhere in the genus.

The distinctions between *Ctenolimnophila* and *Campbellomyia* are weak and depend chiefly on the presence or absence of supernumerary crossveins in the wing. As indicated above, the general appearance of those species that have lost the tibial spurs is much as in *Gnophomyia* and the first described New Zealand species were referred to that genus with a question. The presence of tibial spurs in various species and, especially, the structure of the male hypopygium, indicate that the group has nothing to do with *Gnophomyia* and seems best placed with the Hexatomini. As regards *Abitagua* (Ann. Ent. Soc. America, 37: 315; 1944), it was indicated in the original descriptions that the group was aberrant and might well be found to represent a valid genus. I place it with the present genus chiefly because of the homologies of wing venation with *Ctenolimnophila neolimnophiloides* which seems unquestionably to belong to this genus but with fuller knowledge may prove to fall with the present fly.

Besides the species listed below, six further species of *Campbellomyia* are found in New Zealand where they inhabit mountainous areas in both islands. Nothing is known of the immature stages.

List of Species

Ctenolimnophila

- bivena* Alexander. — Amazonian Brazil, Peru.
- decisa* Alexander. — British Guiana.
- fuscoanalisis* Alexander. — Surinam, eastern Brazil.

Campbellomyia

- neolimnophiloides* Alexander. — Southeastern Brazil.
- pauilistae* Alexander. — Southeastern Brazil.
- severa* Alexander. — Ecuador.

Abitagua

- longifusa* Alexander. — Ecuador.

The wing venation of *bivena* (Fig. 1), *neolimnophiloides* (Fig. 3), *severa* (Fig. 2) and *longifusa* (Fig. 4) are shown.

Mesolimnophila Alexander

Polymoria Philippi; Verh. zool. bot. Ges. Wien, 15: 608; 1865; preoccupied; (type *lutea* Philippi).
Mesolimnophila Alexander; Dipt. Patagonia & S. Chile, 1: 129-130, pl. 3, fig. 67 (wing); 1929; (type *lutea* Philippi).
Polypraesidia Miller; Proc. Roy. Ent. Soc. London, B, Taxonomy, 72; 1945; (type *lutea* Philippi).

Rostrum moderately elongate, approximately as long as remainder of head, the length from two to four times the diameter; palpi 4-segmented, placed near apex of rostrum. Antennae 16-segmented; scape elongate, pedicel subpyriform; flagellar segments long-oval, decreasing in size outwardly, verticils longer than the segments. Head narrowed posteriorly. Pronotum massive. Mesonotal praescutum without tuberculate pits; pseudosutural foveae virtually lacking, appearing as delicate hook-shaped impressions on extreme lateral margin of sclerite. Legs clothed with very conspicuous erect setae; tibial spurs long and conspicuous; claws long and slender, smooth. Wings with cell C broad; vein Sc of moderate length, both Sc_1 and Sc_2 about opposite the fork of Rs, the latter long, arcuated or angulated and short-spurred at origin; R_{2-3-4} subequal to basal section of R_5 ; R_{1-2} about one-half longer than R_2 ; inner ends of cells R_4 , R_5 and 1st M_2 in transverse (*lutea*) to very oblique alignment (*hirsutipes*), in the latter case with cell 1st M_2 lying furthest proximad; cell M_1 subequal to or longer than its petiole; *m-cu* at or near midlength of cell 1st M_2 ; vein 2nd A long, sinuous; anterior arcus preserved. Macrotrichia relatively sparse, on veins proximad of cord chiefly confined to the distal ends or lacking. Malé hypopygium with the median area of ninth tergite produced and with a deep U-shaped notch. Basistyles long; interbases small, each terminating in two acute spines. Outer dististyle long and slender, terminating in a single gently curved black spine; outer margin on distal half to two-thirds with conspicuous appressed spines, the basal half to third setiferous. Inner dististyle less than one-half the length of the outer, fleshy. Aedeagus long.

The venation of the genotype, *lutea*, is shown (Fig. 5). The rostrum and male hypopygium of *hirsutipes* have been figured earlier (Dipt. Patagonia & S. Chile, 1, figs. 203, 204; 1929). As was indicated in the paper cited, it is possible that further studies will show that the genus falls in the Pseudolimnophilaria. Nothing is known of the immature stages of either of the known species.

List of Species

lutea (Philippi). — South Chile.

hirsutipes Alexander. — South Chile.

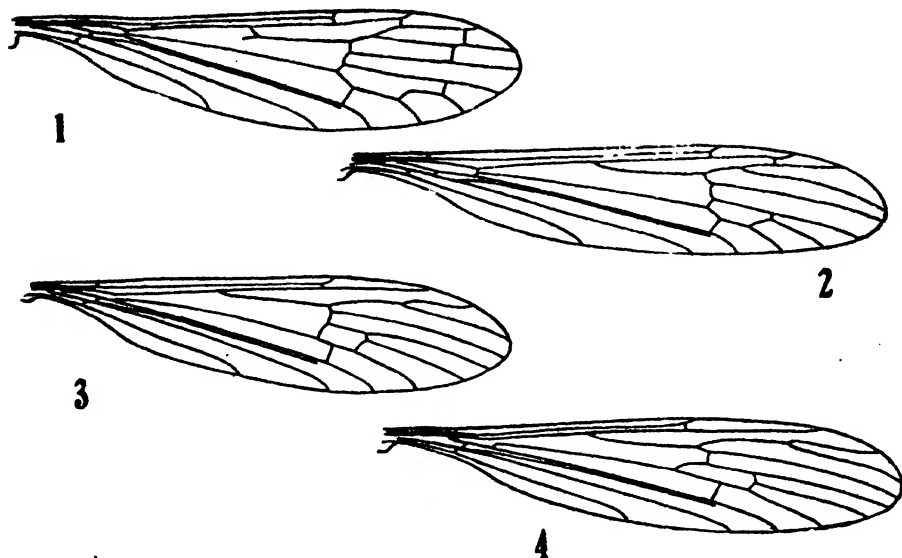


Fig. 1. *Ctenolimnophila* (*Ctenolimnophila*) *bivena* Alexander; venation. — Fig. 2. *Ctenolimnophila* (*Campbellomyia*) *severa* Alexander; venation. — Fig. 3. *Ctenolimnophila* (*Campbellomyia*) *neolimnophiloides* Alexander; venation. — Fig. 4. *Ctenolimnophila* (*Abitagua*) *longifusa* Alexander.

Limnophila Macquart

Limnophila Macquart; Suites à Buffon, 1: 95; 1834; (type *pictipennis* Meigen).
Limnomya Rondani; Prodromus Dipterologiae Italicae, 4 (Corrigenda): 11; 1861; (type *pictipennis* Meigen).
Poecilostola Schiner; Wien. Entomol. Monatschr., 7: 222; 1863; (type *pictipennis* Meigen).

Subgenus *Araucolimnophila* Alexander

Limnophila (*Araucolimnophila*) Alexander; Rev. Chilena Nat. Hist., 43: 177; 1939; (type *wolffhügeli* Alexander).

Subgenus *Roraimomyia* Alexander

Limnophila (*Roraimomyia*) Alexander; Ann. Ent. Soc. America, 28: 323; 1935; (type *permonstrata* Alexander).

The vast genus *Limnophila*, as still constituted, includes a heterogeneous group of forms that require much more study and critical comparisons, not only of the adults but very especially of the immature stages. Rather numerous subgenera have been proposed and recognized but there still remain in most of the faunal areas of the World aberrant and poorly understood species whose position in subgenera still remains uncertain. The various statements made below center about the subgenotype, with comparisons of species that certainly appear to be consubgeneric.

Head in the subgenotype narrowed behind. Antennae 16-segmented, commonly short in both sexes; long and filiform in various regional species, as *filiformis*, *pergracilis*, and others. Pronotum large and massive, the sides not produced cephalad; suture between the scutum and scutellum relatively inconspicuous. Tuberculate pits and pseudosutural foveae relatively large and conspicuous. Legs with tibial spurs present (in local species); claws usually simple, very strongly spined in *ctenonycha*. Wings with cell M_1 usually present, lacking in certain subgenera and individual species; in *bullockiana*, venation of the outer medial field pectinate by the atrophy of basal section of vein M_3 ; *m-cu* well beyond the fork of M , often at or close to midlength of cell 1st M_2 ; anterior arculus preserved (Fig. 6). Trichia of wing cells usually lacking, present in a few species, as *sparsissima*; stigma glabrous; squamae without setae. Abdominal tergites with transverse impressed lines in the subgenotype, this condition much as in *Epiphragma* and *Pseudolimnophila*, as discussed under Part IV of this series of Notes, these lines vague or lacking in many species. Male hypopygium with the outer face of the outer dististyle hairy in subgenotype, glabrous in certain extralimital subgenera. Aedeagus and gonapophyses variously modified in different subgenera and well marked species groups. A common type in Tropical America shows the aedeagus stout and broad-based, with the penis strongly twisted or convoluted within.

The members of the *undulata* group, including *guttulatissima* (Fig. 6) seem most closely to approach the characters of the subgenotype, *pictipennis*.

The genus *Limnophila* is Cosmopolitan, being unusually well represented in the Holarctic Region, with individual subgenera and well-marked groups becoming dominant in other faunal areas.

The immature stages of many species are now known, all being found in wet earth in marshy or boggy areas, along streams, and in similar moist situations.

List of Species

- abstrusa* Alexander. — Chile, Patagonia.
- angustilineata* Alexander. — Paraguay.
- araucania* Alexander. — Chile.
- armigera* Alexander. — Chile.
- bullockiana* Alexander. — Chile.
- charon* Alexander. — Southeastern Brazil.
- ?chilensis* (Blanchard). — Chile.
- ?cinerea* (Philippi). — Chile.
- ctenonycha* Alexander. — South Chile.
- ?decasbila* (Wiedemann). — Brazil.

- dictyoptera* Alexander. — Costa Rica, Panama, Venezuela.
expressa Alexander. — Southeastern Brazil.
eutheta Alexander. — Chile.
feriata Alexander. — South Chile.
jiliformis Alexander. — South Chile.
?flavicauda (Bigot). — Tierra del Fuego.
guttulatissima Alexander. — Costa Rica.
hoffmanniana Alexander. — Southeastern Brazil.
humidicola Alexander. — South Chile, Patagonia.
inculta Alexander. — South Chile, Patagonia.
kaieturana Alexander. — British Guiana, Venezuela.
kertész Alexander. — Southeastern Brazil.
leucostigma Alexander. — Southeastern Brazil.
litigiosa Alexander. — Chile.
lloydi Alexander. — Colombia.
madida Alexander. — Mexico.
melica Alexander. — Chile.
nemorivaga Alexander. — South Chile.
oiticicaí, sp. n. — Southeastern Brazil.
(*pallens* Philippi, see *Aphrophila*, Part II).
pergracilis Alexander. — Ecuador.
procella Alexander. — Peru.
pullipes Alexander. — Southeastern Brazil.
roraima Alexander. — Venezuela.
roraimicola Alexander. — Venezuela.
rubecula Alexander. — Peru.
schadei Alexander. — Paraguay.
seclusa Alexander. — Chile.
sparsissima Alexander. — South Chile.
spinulosa Alexander. — Ecuador, Peru.
?tenella (Philippi). — Chile.
therasiae Alexander. — Southeastern Brazil.
undulata (Bellardi). — Mexico.

Besides the various species whose strict generic position is questioned above, I would call attention also to *charon*, which may be found to fall in the Pseudolimnophilaria.

Subgenus *Araucolimnophila* Alexander

Characters as in typical *Limnophila* but with a strong supernumerary crossvein in cell C, immediately above the origin of *Rs*; cell *R*₃ very short-petiolate; cell *M*₁ shorter than its petiole; *m-cu* beyond two-thirds the length of cell 1st *M*₂; no supernumerary veins or folds behind the Anal veins, as is common in the more generalized Hexatomini; anterior arcus preserved. (Fig. 7). Antennae 16-segmented; basal four flagellar segments tumid, especially the first; succeeding segments cylindrical, with long coarse verticils that exceed the segments in length. No tuberculate pits; pseudosutural foveae large. The type and only known species is *Limnophila* (*Araucolimnophila*) *wolffhügeli* Alexander, of South Chile (Fig. 7).

Subgenus *Roraimomyia* Alexander

Characters as in typical *Limnophila* but with the wings and halteres entirely lacking. Correlated with this apterous condition, the following modifications of thoracic structure are found. — mesonotum flattened, the limits of the individual sclerites scarcely indicated; pleura restricted by this dorsoventral depression. The type and only known species is *Limnophila (Roraimomyia) permonstrata* Alexander, still known only from the summit of Mount Roraima, Venezuela. It may be emphasized that this is the only crane-fly known that has lost the halteres. Despite this striking character, the structure of the male hypopygium shows clearly that the group falls in the present genus or, possibly, in the allied *Shannonomyia*.

The following notes on the occurrence of this curious fly were made by the collector, the late Dr. John G. Myers, on Roraima, altitude 8,500 feet, November 20, 1932. "Running very actively over the ground in the lower places, especially sandy spots near the lagoons. Not uncommon but patchy in distribution".

Limnophila oiticicai, sp. n.

Size small (wing, male, 7 mm.); mesonotum gray, the praescutum with a conspicuous dark brown central stripe, the sublateral ones much less distinct; wings hubhyaline with an unusually pale brown pattern that is chiefly restricted to the cells beyond the cord, including a band immediately before the wing tip; R_{2-3-4} about twice as long as the basal section of R_5 ; male hypopygium with the ninth tergite notched medially; outer dististyle heavily blackened, very unequally bifid at apex, the outer angle a straight powerful spine, directed outward, the lower angle a low, broadly flattened lobe.

Male. — Length, about 6.5 mm.; wing, 7 mm.; antenna, about 1.1 mm.

Rostrum black, sparsely pruinose; palpi black. Antennae short; scape brown, remainder of organ black; flagellar segments suboval, with a dense erect white pubescence; basal segments more produced on ventral face, the longest verticils on the outer face. Head dark gray; anterior vertex relatively narrow.

Pronotum gray. Mesonotal praescutum gray with a narrow but conspicuous dark brown median stripe that narrows to a point behind, the sublateral stripes less distinct; humeral region of praescutum restrictedly yellowed; posterior sclerites of notum

chiefly brownish gray. Pleura dark gray, including the dorso-pleural region. Halteres pale, knob infuscated. Legs with the coxae brownish gray; trochanters obscure brownish yellow; femora brownish black, setae relatively inconspicuous; remainder

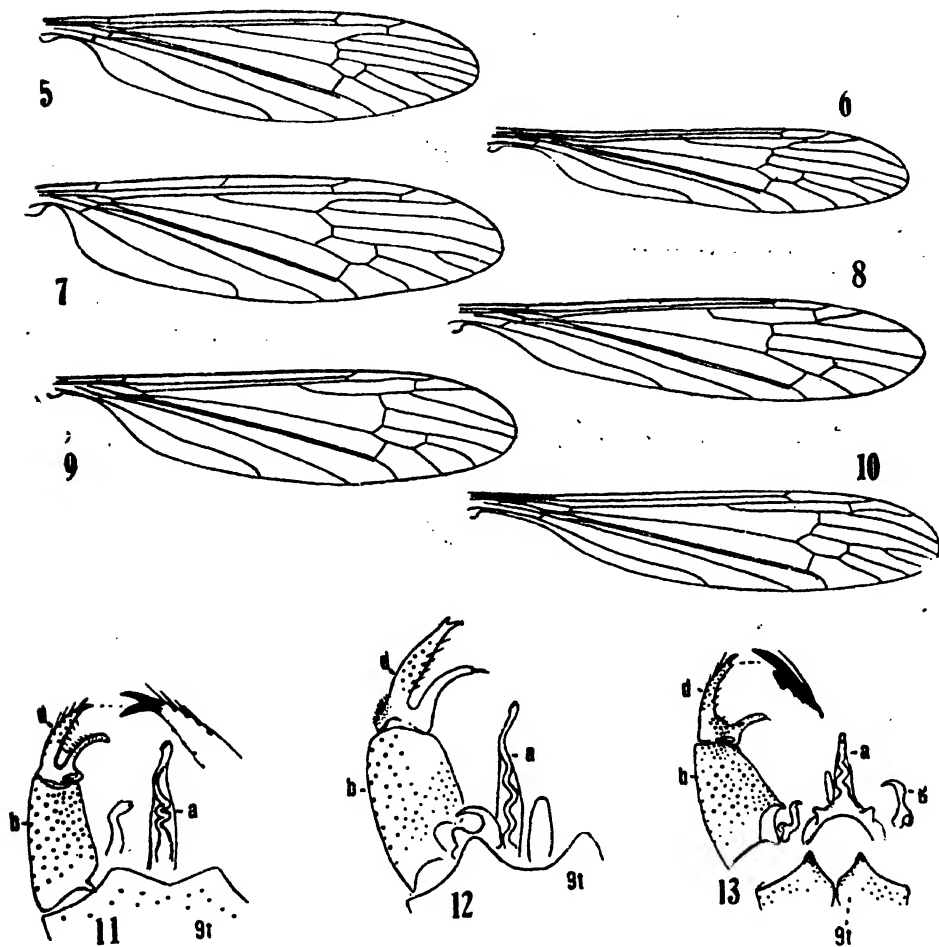


Fig. 5. *Mesolimnophila lutea* (Philippi); venation. — Fig. 6. *Limnophila* (*Limnophila*) *guttulatissima* Alexander; venation. — Fig. 7. *Limnophila* (*Araucolimnophila*) *wolffhügelii* Alexander; venation. — Fig. 8. *Shannonomyia cingara*, sp. n.; venation. — Fig. 9. *Shannonomyia umbra*, sp. n.; venation. — Fig. 10. *Pilaria rubella* Alexander; venation. — Fig. 11. *Shannonomyia cingara*, sp. n.; male hypopygium. — Fig. 12. *Shannonomyia longiradialis* Alexander; male hypopygium. — Fig. 13. *Shannonomyia umbra*, sp. n.; male hypopygium. — (Symbols: a, aedeagus; b, basistyle; d, dististyle; g, gonapophysis; t, tergite).

of leg black. Wings subhyaline, with an unusually pale brown pattern that is chiefly restricted to the cells beyond the cord; very pale clouds at origin of *Rs*, tip of 2nd *A* and at midlength of leg black. Wings subhyaline, with an unusually pale brown end of cell 1st *M*₂; a pale and inconspicuous band before wing

tip, beyond which is a vaguely paler area; stigma pale, darker at either end; veins brown. Venation: Sc_1 ending just beyond the level of fork of R_s , Sc_2 longer, near its tip; R_{1-2} more than twice R_2 ; R_{2-3-4} about twice the basal section of R_5 ; cell M_1 about three-fifths as long as its petiole; $m-cu$ nearly its own length beyond the fork of M .

Abdomen black, the intermediate sternites a trifle more reddened. Male hypopygium with the region of the ninth tergite deeply notched, the lobes broad, their apices slightly emarginate, more produced adjoining the notch. Outer dististyle appearing as a strong blackened rod, very unequally bifid at tip, the outer angle a straight powerful spine, the lower angle a broadly flattened lobe; lower surface of style with numerous coarse erect setae. Inner dististyle shorter, the outer two-thirds a cylindrical lobe.

Habitat: Southeastern Brazil.

Holotype, ♂, Terezopolis, Rio de Janeiro, January 1, 1947 (J. Oiticica Filho).

I am pleased to name this fly for the collector, Mr. J. Oiticica Filho. Among the regional species, most similar to *Limnophila expressa* Alexander, which is larger, with distinct venation and body coloration and with the structure of the male hypopygium quite different.

Shannonomyia Alexander

Shannonomyia Alexander; Dipt. Patagonia & S. Chile, 1: 142-143, figs. 73-75, 212; 1929; (type *lenta* Osten Sacken).

Rostrum short. Antennae 16-segmented, short or of moderate length, more rarely elongate; scape elongate; verticils relatively short. Vertex broad. Pseudosutural foveae very small; tuberculate pits lacking. Tibial spurs present. Wings fully developed except in *minutipennis*. Venation (Figs. 8, 9): Sc short to very short, Sc_1 ending opposite or before the fork of R_s , Sc_2 close to or slightly removed from its tip; R_s usually short, strongly arcuated to angulated at origin; R_{2-3-4} long to very long, R_{3-4} usually lacking, R_2 thus arising close to end of R_{2-3-4} ; in some species (including *brevinervis*, *nacrea*, *triangularis*) vein R_{3-4} is present with cell R_3 correspondingly shortened, *Gonomyia*-like; vein R_2 generally subequal to R_{1-2} ; inner ends of cells R_4 , R_5 and 1st M_2 in transverse alignment; cell M_1 lacking; cell 1st M_2 usually closed in such cases long to very long, often irregular in outline by inequalities of m and basal section of M_3 ; in cases cell M_2 open by the atrophy of m (as in *ænigmatica*, *nacrea*, *orophila*, *triangularis*, and others); $m-cu$ beneath cell 1st M_2 , in some, as

aenigmatica, *antarctica* and *triangularis*, closer to the fork of *M*; anterior arculus preserved. Wing cells usually glabrous, rarely with macrotrichia in outer cells. Male hypopygium with basistyles (Figs. 11-13) relatively long and slender. Dististyles two, broadly interconnected at base; outer style slender, narrowed to apex which is usually bifid; outer surface of style with long coarse setae. Aedeagus of moderate length to elongate. Ovipositor with elongate sclerotized valves.

In addition to the relatively numerous species in the local fauna, as listed below, two further species, including the genotype, occur in the Nearctic Region. To the present date the generic diagnosis includes only those forms having cell *M*₁ lacking and it is probable that certain species at present placed in the genus *Limnophila* having cell *M*₁ preserved may likewise be better placed in *Shannonomyia*. In such an event, some of the included members may be Australasian in distribution.

The immature stages are found in wet earth at margins of streams and ponds.

List of Species

- adumbrata* Alexander. — Mexico.
- aenigmatica* Alexander. — South Chile.
- antarctica* (Walker). — Straits of Magellan.
- araguae* Alexander. — Venezuela.
- argenteiceps* Alexander. — Ecuador.
- atroapicalis* Alexander. — Panama.
- australathraea* Alexander. — Ecuador, Bolivia.
- barilochensis* Alexander. — South Chile, Patagonia.
- batesi* Alexander. — Hispaniola: Haiti.
- bogotensis* Alexander. — Colombia.
- brevicula* Alexander. — Cuba.
- brevinervis* Alexander. — South Chile.
- bruneriana bruneriana* Alexander. — Cuba.
- bruneriana forticornis* Alexander. — Cuba.
- cacoxena cacoxena* Alexander. — Patagonia.
- cacoxena mendica* Alexander. — Patagonia.
- caesia* Alexander. — Southeastern Brazil.
- cerbereana* Alexander. — Ecuador.
- ?cineracea* (Philippi). — Chile.
- cingara*, sp. n. — Peru.
- dampfi* Alexander. — Mexico.
- erubescens* Alexander. — Southeastern Brazil.
- gracillor* Alexander. — Southeastern Brazil.
- haitensis* Alexander. — Hispaniola; Haiti.
- hoffmani*, Alexander. — Puerto Rico.
- ignava* Alexander. — Peru.
- jaffueli* Alexander. — Chile.
- justa* Alexander. — Southeastern Brazil.
- lathraea* (Alexander). — Colombia.
- lenitatis* Alexander. — Mexico.

- lentina* Alexander. — Mexico.
lentoides Alexander. — Guatemala.
leonardi Alexander. — Puerto Rico.
longiradialis Alexander. — South Chile.
mesophragma Alexander. — Cuba.
mesophragmoides Alexander. — Cuba.
minutipennis Alexander. — Patagonia.
moctezuma Alexander. — Mexico.
myersiana Alexander. — Jamaica.
nacre (Alexander). — Jamaica.
olssoni (Alexander). — Panama.
orophila (Alexander). — Colombia.
ovaliformis Alexander. — Mexico.
paraguayensis Alexander. — Paraguay.
*penumbr*osa Alexander. — Chile.
phaeostigma Alexander. — Peru.
phragmophora Alexander. — Cuba.
protuberans Alexander. — Mexico.
roraimensis Alexander. — Venezuela.
scaramuzzai Alexander. — Cuba.
septempunctata Alexander. — Hispaniola: Dominican Republic.
sopora Alexander. — Peru.
sparsipuncta Alexander. — Ecuador.
?stigmatica (Philippi). — Chile.
triangularis Alexander. — Puerto Rico.
umbra, sp. n. — Peru.
?venosa (Philippi). — Chile.
?verecunda (Philippi). — Chile.
vocator Alexander. — Ecuador.
zernyana Alexander. — Southeastern Brazil.

Shannonomyia longiradialis Alexander

Shannonomyia longiradialis Alexander; Journ. N. Y. Ent. Soc., 37: 96-97; 1929.

The unique type was from Ancud, Chiloë Island, South Chile, collected April 2-7, 1920, by J. Chester Bradley. The male hypopygium of the type is illustrated (Fig. 12). The homology of the elongate-oval plate at the base of the aedeagus remains in question.

Shannonomyia cingara, sp. n.

Mesonotum medium brown, the praescutum darker medially; antennae relatively long, if bent backward extending nearly to the wing root; femora brown, the outer segments of the legs deepening to black; wings yellow, restrictedly patterned with brown; *Sc* long, *Sc*₁ ending beyond the level of the fork of *Rs*; *m-cu* at or beyond midlength of cell 1st *M*₂; abdomen black, the base of the hypopygium brownish yellow; male hypopygium with

the tergal lobes very low; outer dististyle bidentate at apex, the axial spine being the lower or more ventral in position.

Male. — Length, about 5.5-6 mm.; wing, 5.8-6.2 mm.; antenna, about 1.6-1.8 mm.

Rostrum brownish black; palpi black. Antennae (male) relatively long, as shown by the measurements, if bent backward extending nearly to the wing root, black throughout; flagellar segments elongate-cylindrical, with long sparse verticils and abundant erect shorter setae over the entire segment. Head brown, more grayish in front; posterior vertex with a capillary blackened median vitta.

Pronotum brownish gray. Mesonotum chiefly medium brown, the praescutum with a darker brown median stripe, the lateral stripes lacking; centers of scutal lobes darkened; scutellum brownish yellow; mediotergite light gray. Pleura and pleurotergite brownish gray. Halteres obscure yellow. Legs with coxae brownish yellow, more or less pruinose; trochanters yellow; femora brown, somewhat brightened basally; tibiae brownish black; tarsi black. Wings (Fig. 8) yellow, the prearcular and costal fields clearer yellow; a restricted brown pattern, including the stigma and seams at origin of R_s , along cord and outer end of cell 1st M_2 ; veins brown, yellow in the brightened areas. Venation: Sc long, Sc_1 ending just beyond the level of fork of R_s , Sc_2 at its tip and beyond this level; R_2 subequal to R_{1-2} , just beyond the base of cell R_3 ; inner ends of cells R_4 , R_5 and 1st M_2 in transverse alignment; $r-m$ strongly arcuated; $m-cu$ usually lying far distad, at near three-fourths the length of cell 1st M_2 or approximately its own length or less before the fork of M_{3-4} , in cases, closer to midlength of the cell; cell 1st M_2 nearly as long as the distal section of vein M_{1-2} . One paratype has cell M_2 of one wing only open by the atrophy of the basal section of M_3 .

Abdomen black; ninth tergite of male brownish yellow, basistyles darkened. Male hypopygium (Fig. 11) with the tergal lobes, $9t$, very low, the median area shallowly emarginate. Outer dististyle, d , slender, bidentate at tip, the axial spine ventral in position, the second spine on outer margin; style with conspicuous erect setae on ventral surface, those of distal half of outer surface more appressed. Aedeagus, a , elongate, convoluted inside the sheath.

Habitat: Peru.

Holotype, ♂, Sariapampa, Huanuco, altitude 3,600 meters,

in fog forest, May 2, 1946 (Woytkowski). Paratopotypes, 2 ♂♂, May 7, 1946 (Woytkowski).

The present fly is generally similar to species such as *Shannonomyia cacoxena* Alexander, being readily distinguished by the moderately lengthened antennae, more heavily patterned wings, and the details of structure of the male hypopygium.

Shannonomyia umbra, sp. n.

Size relatively large (wing, male, over 8 mm.); mesonotal praescutum with three black stripes; posterior sclerites of notum gray, the scutellum with a capillary black vitta; femora obscure yellow, the tips passing into brownish black; wings with a brownish tinge, restrictedly patterned with brown; R_{2-3} approximately one-half vein R_2 ; $m-cu$ at near two-fifths the length of cell 1st M_2 ; male hypopygium with the tergal lobes unusually slender; outer dististyle very unequally bidentate at tip, the lower spine subapical and much reduced.

Male. — Length, about 7.5 mm.; wing, 8.2 mm.; antenna, about 1.7 mm.

Rostrum and palpi black, the former slightly pruinose. Antennae short, black throughout; flagellar segments long-oval, subequal in length to the verticils. Head black, gray pruinose, the orbits narrowly lighter gray; a capillary black vitta on the posterior vertex, narrowed behind.

Pronotum gray pruinose. Mesonotal praescutum with the interspaces brown, the lateral and humeral borders clearer gray; three black stripes, the median one deeper in color, subnitidous; scutal lobes with subnitidous blackened centers; posterior sclerites of notum gray with a capillary black median vitta extending from midlength of the scutum over the scutellum, widened behind. Pleura and pleurotergite black, heavily gray pruinose. Halteres with stem yellow, knob large, weakly infuscated. Legs with coxae black, sparsely pruinose; trochanters obscure brownish yellow; femora obscure yellow, the tips passing into brownish black; tibiae yellowish brown, the tips darker; tarsi passing into black. Wings (Fig. 9) with a brownish tinge, the prearcular and costal fields more yellowed; stigma oval, brown; very restricted and inconspicuous brown seams at origin of R_s , over cord and more evident along vein Cu in cell M ; veins brown, yellow in the brightened fields. Venation: Sc_1 ending about opposite three-fourths the length of R_s , Sc_2 a short distance from its tip; R_{2-3} approximately one-half R_2 ; inner ends of cells R_4 , R_5 and 1st M_2

in transverse alignment; cell *1st M*₂ about equal in length to the distal section of *M*₃; *m-cu* at near two-fifths the length of cell *1st M*₂ or about its own length beyond the fork of *M*.

Abdomen, including hypopygium, black. Male hypopygium (Fig. 13) with the lobes of the tergite, *9t*, unusually slender, subacute at tips. Outer dististyle, *d*, a simple setiferous rod, narrowed to a strong blackened spine, with a small subterminal denticle on lower margin; setae over most of the surface, those of the outer face long, appressed. Inner dististyle a shorter cultriform blade, the two styles separated by pale membrane provided with abundant setae. Structures interpreted as being gonapophyses, *g*, appear as small sinuous blades, the tips as curved acute spines. Aedeagus, *a*, with the penis weakly sinuous or convoluted within the sheath.

Habitat: Peru.

Holotype, ♂, Carpish, Huanuco, altitude 2,800 meters, in dwarf rain forest, October 19, 1946 (Woytkowski).

The present fly superficially resembles species such as *Shannonomyia bariloensis* Alexander and *S. cadoxena* Alexander, of Patagonia and South Chile, differing in the details of coloration of the body and wings and in the venation and structure of the male hypopygium.

Pilaria Sintenis

Pilaria Sintenis; Sitzgber. Naturf. Ges. Dorpat, 8: 398; 1888; (type *pilicornis* Zetterstedt = *meridiana* Staeger).
Limnophila (*Eulimnophila*) Alexander; Cornell Univ. Agr. Expt. Sta. Mem. 25: 917; 1919; (type *tenuipes* Say).

Head broad, not narrowed behind. Pronotum small. Tuberculate pits small but evident; pseudosutural foveae large. Antennae 16-segmented, short to elongate in the males of a few species, including the subgenotype; flagellar verticils of unusual length, much longer than the segments except in those species having the organ elongate, in these latter species with additional erect setae scattered over their length. Legs with tibial spurs long and conspicuous. Wings (Fig. 10) with *Sc* relatively short, *Sc*₁ ending opposite or before the fork of the long *Rs*; *R*₂₋₃₋₄ elongate, in longitudinal alignment with *R*₄; *R*₂ at or close to fork of *R*₂₋₃₋₄, *R*₂₋₃ thus short or lacking; inner ends of cells *R*₄, *R*₅ and *1st M*₂ in approximate transverse alignment; cell *M*₁ present or lacking, present in the local species; *m-cu* approximately opposite midlength of cell *1st M*₂, in cases some distance beyond this point; anterior arcufus preserved. Squama with setae; stigma with macrotrichia, these lacking in the wing cells. Abdominal

tergites without transverse impressed areas. Male hypopygium with two dististyles, the outer one bearing delicate setulae on outer face near base; style terminating in an acute spine, with microscopic spinulae on lower margin back from this point.

The genus *Pilaria* is essentially Holarctic in its distribution, with a few species in the Oriental Region. The local species are *Pilaria rubella* Alexander (Fig. 10) and *P. tenuipes* (Say), both from Mexico.

The immature stages of several of the Holarctic species are known. These live in the ooze and semisuspended silt at the margins of water, particularly ponds and bogs; in cases the larvae are found in the thin silt layers accumulating between sodden and partly decayed leaves in such places.

Species of the closely related genus *Ulomorpha* Osten Sacken may occur in northern Mexico since representatives are known from southern California. Species of this genus have most of the characters described for *Pilaria* but have the wing cells provided with abundant macrotrichia and with cell R_3 of wings sessile or very short-petiolate.

Gynoplistia Westwood

Gynoplistia Westwood; London & Edinburgh Phil. Mag., 6: 280; 1835; (type *vllis* Walker, as *nervosa* Westwood).
Anoplites Westwood; Zool. Journ., 5, no. 20: 447; 1835; (type *vllis* Walker; as *nervosa* Westwood).
Variegata Bigot; Ann. Soc. Ent. France, (3) 2: 456; 1854; (type *bella* Walker, as *gynoplistioides* Bigot).
Variptera Bigot; Ann. Soc. Ent. France, (3) 2: 471; 1854; (type *bella* Walker, as *gynoplistioides* Bigot).
Ctedonia Philippi; Verh. zool.-bot. Ges. Wien., 15: 602; 1865; (type *bicolor* Philippi).
Cloniophora Schiner; Verh. zool.-bot. Ges. Wien, 16: 932; 1866; (type *subfasciata* Walker).
Caenarthria Thomson; Eugenies Resa, Diptera, p. 445, pl. 9, fig. 1; 1869; (type *viridis* Westwood).
Scepasma Enderlein; Zool. Anzeig., 49: 60; 1917; (type *bipunctatum* Philippi).

Subgenus *Dirhyps* Enderlein

Dirhyps Enderlein; Zool. Anzeig., 49: 58; 1917; (type *riedellana* Enderlein).

Subgenus *Paralimnophila* Alexander

Limnophila (*Paralimnophila*) Alexander; Ann. Mag. Nat. Hist., (9) 8: 559-560; 1921; (type *leucophaeta* Skuse).

One of the dominant protean genera of Tipulidae, greatly developed in the Australasian Region, with fewer representatives in the Neotropics, virtually all in the Chilean Subregion.

Five apparently valid subgenera are recognized, the three named above occurring in the local fauna. Besides these, two others briefly discussed below are restricted to the Australasian fauna.

Gynoplistia Westwood. Antennae of male sex branched, in

cases with short inconspicuous branches, in others these long and graceful, producing a flabellate appearance; antennae of females less strongly branched than in the males and not necessarily in a proportional degree, some of the males with longest branches having unusually short ones in the females; the minimum of branching in the females is a slight serration. The antennal segments in the typical subgenus as now considered range between 13 and 24, in the local fauna between 16 and 24. Venation: R_{2-3-4} short to very short, in the latter case with cell R_3 subsessile; cell M_1 present in all local species, lacking in numerous species in Australia, New Guinea and Celebes; anterior arcus preserved. In various species with a strong vein or fold in cell *1st A*, arising near the base of vein *2nd A* and extending for more than one-half the length of the cell (as in *bicolor*, Fig. 14). Male hypopygium exceedingly diverse in structure in the various species, not showing a single monotonous basic plan, as in *Paralimnophila*.

About 14 species of the typical subgenus are found in the Chilean subregion. In the Australasian Region more than 250 other species are found in Australia, New Zealand, New Caledonia, New Guinea and Celebes, reaching their western limit at Wallace's Line. In the great biologically unstable area lying between Wallace's Line and Weber's Line, commonly called "Wallacea", relatively few species are found but in New Guinea a host of forms occur, most of which have been discovered only recently. The greatest proportion of the described species occur in eastern Australia, Tasmania and New Zealand. The species found in Chile are entirely consubgeneric with the Australasian forms and the group must have attained its present distribution via the former Antarctic continent. In my opinion, this single genus provides an almost unbreakable link in the long chain of evidence supporting a belief in a former Antarctic land connection.

Dirhipis Enderlein. Large but relatively plain colored species, most conspicuous by the unusually long flagellar branches in the male sex. All known species are Chilean. As is shown by the accompanying list, various names have been proposed but most of the so-called species remain poorly known. Antennae (male) 21-23-segmented, commonly with 12 branched segments, the two basal branches lying in a plane different from those that follow; branches very long, exceeding one-half the length of the entire flagellum; branches with abundant long erect setae. Males fully winged; females, where known, with rudimentary wings.

Paralimnophila Alexander. In the local fauna about 10 species have been defined, with about 35 further described forms in Australia and Tasmania, two in New Zealand, and a few further species in New Caledonia and New Guinea. It is only in the Australian fauna that species with branched antennal segments occur, all others, including the local forms, having the segments entirely simple, much as in the genus *Limnophila*. The number of antennal segments range from 14 to 25, in the local fauna between 14 and 16. In the Australian fauna some species (as *flavipes* Alexander, *harrisoni* Alexander, *remulsa* Alexander, and others) have the flagellar branches so elongated, as to resemble species of the subgenus *Cerozodia* Westwood, where the maximum of pectination of the antennae, as at present known, is found. In certain of these species having long-branched antennae, all but the last segment is so branched, with all branches lying in a single plane. I had suspected that the subgenotype of *Cerozodia* (*interrupta* Westwood, of the Swan River District, West Australia) might prove to be a *Paralimnophila* since some of the species of the latter subgenus, as listed above, have even longer branches. I am greatly indebted to Professor G. D. Hale Carpenter and Mr. B. M. Hobby, of the Hope Department of Entomology, University Museum, Oxford University, for a photograph of the unique type specimen of *interrupta*. This shows that our interpretation of the subgenus *Cerozodia* is correct. In addition to the type, there are five further species, all from New Zealand.

The American species of *Paralimnophila*, as listed below, are found chiefly in the Chilean Subregion, with one species occurring in southeastern Brazil. Both sexes of the local forms, as known, are full-winged with the exception of *perreducta* where the wings of the female are greatly reduced in size. Venation (Fig. 15) with cell R_3 short-petiolate to subsessile; cell M_1 present in all local species, lacking in certain Australasian forms; *m-cu* lying unusually far basad, close to or just beyond the fork of *M*. The male hypopygium shows a surprising uniformity in basic structure throughout the range of forms as now known. Ninth tergite large, narrowed outwardly, the apex truncate or virtually so. Dististyles two, terminal in position, the outer style a simple glabrous rod or blade, its outer apical angle extended into a terminal spine, the corresponding lower angle evenly rounded. Inner dististyle fleshy, setiferous. Aedeagus and gonapophyses relatively small and inconspicuous. Certain of the Chilean species have the legs

handsomely and conspicuously banded with black and yellow; in *pallitarsis*, the legs are black with the tarsi conspicuously pale.

Besides the three subgenera in the local fauna and *Cerzodia*, above mentioned, there remains the subgenus *Xenolimnophila* Alexander, with three described species in southeastern Australia

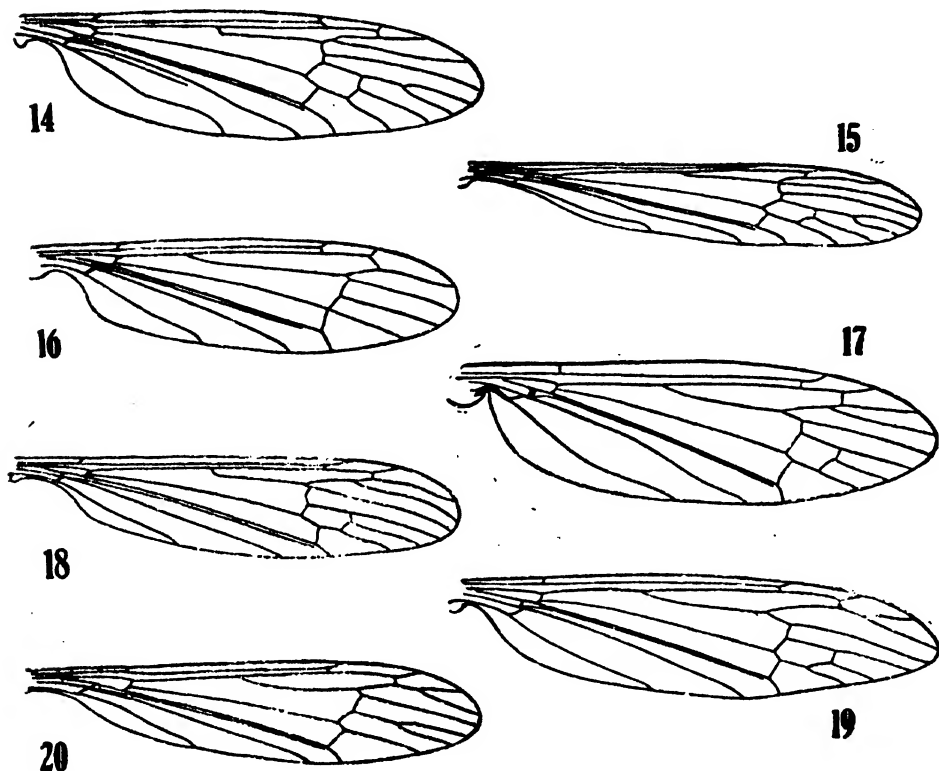


Fig. 14. *Gynoplistia* (*Gynoplistia*) *bicolor* (Philippi); venation. — Fig. 15. *Gynoplistia* (*Paralimnophila*) *pirioni* Alexander; venation. — Fig. 16. *Hexatoma* (*Cladolipes*) *cisatlantica* Alexander; venation. — Fig. 17. *Hexatoma* (*Eriocera*) *ogloblini* Alexander; venation. — Fig. 18. *Hexatoma* (*Eriocera*) *cubensis* Alexander; venation. — Fig. 19. *Hexatoma* (*Eriocera*) *breviuscula* Alexander; venation. — Fig. 20. *Hexatoma* (*Eriocera*) *patens* Alexander; venation.

and Tasmania. In this single small group, species are found with fully developed wings to one with the wings greatly reduced in both sexes. The basic plan of structure of the male hypopygium is distinctive.

The immature stages of only a few species of *Gynoplistia* have been made known. These include only Australian forms, as *bella* Walker, and *vilis* Walker, where the larvae have been found in damp earth, just beneath the surface.

List of Species

Gynoplistia

- biarmata* Alexander. — Chile.
bicolor (Philippi). — South Chile.
bipunctata (Philippi). — South Chile.
elnorae Alexander. — South Chile.
flavipennis (Philippi). — South Chile.
(fusca Jaennicke, see *Dirhipis*, below).
gilvipennis Alexander. — South Chile.
hylonympha Alexander. — South Chile.
leucopeza leucopeza Alexander. — South Chile.
leucopeza postica Alexander. — South Chile.
manicata Alexander. — South Chile.
pictipennis (Philippi). — South Chile.
(riedeliana Enderlein, see *Dirhipis*, below).
(striatipennis Alexander, see *Dirhipis*, below).
tristillata Alexander. — South Chile.
variata Alexander. — South Chile.
variicalcarata Alexander. — South Chile.
varipes Alexander. — South Chile.

Dirhipis

- fusca* Jaennicke. — Chile.
riedeliana (Enderlein). — South Chile.
striatipennis Alexander. — South Chile.

Paralimnophila

- conspersa* (Enderlein). — Southeastern Brazil.
infestiva Alexander. — South Chile.
irrorata (Philippi). — South Chile.
pachyspila Alexander. — South Chile.
pallitarsis Alexander. — Chile.
perirrorata Alexander. — Chile.
perreducta Alexander. — Chile.
pirioni Alexander. — Chile.
rara Alexander. — South Chile.
stygipes Alexander. — South Chile.
subfuscata (Alexander). — Northern Argentina.

Hexatoma Latreille

- Hexatoma* Latreille; Gen. Crust. et Ins., 4: 260; 1809; (type *nigra* Latreille).
Nematocera Meigen; Syst. Besch., 1: 209; 1818; (type *bicolor* Meigen).
Anisomera Wiedemann, in Meigen; Syst. Besch., 1: 210; 1818; (type *obscura* Wiedemann).
Peronecera Curtis, British Entomol., p. 589; 1836; (type *fuscipennis* Curtis).
Trimacromera Enderlein; Tierwelt Mitteleur., 6, Teil 3, Lief 2: xvi; 1936; (type *nubeculosa* Burmeister).

Subgenus *Eriocera* Macquart

- Caloptera* Guérin; Voyage Monde Coquille, Zool., Ins. (plates), tab. 20, fig. 2; 1829; (type *fasciata* Guérin).
Evanioptera Guérin; Voyage Monde Coquille, Zool., Ins. (text), 2, pt. 2: 287; 1838; (re-naming of last as being preoccupied).
Eriocera Macquart; Dipt. exot., 1, pt. 1: 74; 1838; (type *nigra* Wiedemann).
Pterocosmus Walker; List Diptera British Mus., 1: 78; 1848; (type *hilpa* Walker).
Alarithmia Loew; Bernstein und Bernsteinfauna, pp. 36, 38; 1850; (type *palpata* Loew).
Oligomera Doleschall; Natuurk. Tijdschr. Nederl. Indie, 14: 387; 1857; (type *acrostacta* Wiedemann, as *javanica* Doleschall).
Physecranla Bigot; Ann. Soc. Ent. France, (3) 7: 123; 1859; (type *obscura* Bigot).

Arrhenica Osten Sacken; Proc. Acad. Nat. Sci. Philadelphia 1859: 242; 1859; (type *spinosa* Osten Sacken).
Pentoptera Schiner; Wien. Entomol. Monatschr., 7: 220; 1863; (type *chirothecata* Scopoli).
Androclosma Enderlein; Zool. Jahrb., Syst., 32: 34; 1912; (type *verticalis* Wiedemann).

Subgenus *Cladolipes* Loew

Cladolipes Loew; Zeltschr. für ges. Naturwiss., 26: 424; 1865; (type *simplex* Loew).

There are apparently only four valid subgenera, two of which, *Eriocera* and *Cladolipes*, are in the local fauna and are detailed below. Of the others, the typical subgenus *Hexatoma* is Holarctic and chiefly Palaearctic in distribution. *Euhexatoma* Alexander is Oriental, at the present time including a single species.

Subgenus *Eriocera* Macquart

One of the most widely distributed and dominant of all crane-fly groups, being especially numerous in species in the Neotropical and Oriental Regions, as discussed.

The earliest name to be applied to members of this subgenus appears to be *Caloptera* Guérin, where the name was given on a plate of figures but without further characters. In 1835, Westwood, having seen this plate, identified one of his new species as falling here and described it as *Caloptera nepalensis*. In 1838, the text of the Voyage of the *Coquille* was published and Guérin had changed the name *Caloptera* to *Evanioptera*, under the belief and misconception that his name *Caloptera* had been previously used elsewhere. In the meantime the commonly accepted name, *Eriocera* had been proposed earlier in the same year by Macquart. No one has attempted to validate the name *Caloptera* as based on the above discussed prior mentions.

In the local fauna, *Eriocera* includes a host of medium to large sized species, often with handsomely banded wings and bright contrasted body colors, providing an unusually conspicuous element in the Neotropical fauna.

Antennae in the Neotropical species short to very long (as in *antennata*, *macrocera*, and others), commonly with seven or eight segments in the male, eight to eleven in the female; segments cylindrical, in those species with elongate antennae very long-cylindrical; vestiture of the flagellar segments various, in the species with lengthened antennae frequently but not always with small spinous setae on the more basal flagellar segments, these serving as an aid in emergence from the pupa and termed

emergence setae. Anterior vertex often with a greatly enlarged or variously modified tubercle, usually largest in those species having the longest antennae, Tibial spurs present. Various species in the so-called "*Penthoptera*" group, including various local species, have the legs blackened, the tarsi snowy white. Wings (Figs. 17-20) with the venation varying greatly in the different groups of species; Sc_2 usually near the tip of Sc_1 ; in some local species (as *interlineata*) with Sc_2 longer and much stronger than the weak transverse Sc_1 . Some species (as *acunai*) with cell R_3 very deep, its petiole (R_{2-3-4}) correspondingly shortened, only about one-fourth the length of the cell, so vein R_{2-3} is much longer than R_{2-3-4} . In other species, (as *aglaia*) R_{2-3-4} is long, with R_2 at or close to its fork so vein R_{2-3} is very short to lacking; in still other species (Fig. 19) R_2 lies far before cell R_3 so that an element R_{3-4} is present (as in *beebeana*, *breviuscula*, *cabra-lensis*, *patens* and several others in various degrees). Cell M_1 lacking in all Neotropical species, preserved in numerous species in the Holarctic and Oriental Regions; in *patens* (Fig. 20), cell M_2 open by the atrophy of the basal section of vein M_3 ; *m-cu* variable in position, often at the fork of M , in cases (as *acunai*) lying far distad, near the outer end of cell 1st M_2 ; *m-cu* usually longer than the distal section of Cu_1 , in cases the latter the longer element; anterior arculus preserved. Supernumerary crossveins sometimes present (in *acunai* in cell R_4 , in *beebeana* in cell R_5); in the related subgenus *Euhexatoma* with three strong supernumerary crossveins in outer radial field (cells R_3 , R_4 and R_5). Wings often unpatterned though variously darkened; in other rather numerous species in the local fauna with a conspicuous brown and yellow crossbanded pattern; in a few local species (as *cramptoni* and *multiguttata*) the wings are abundantly spotted and dotted with brown. Male hypopygium with the two dististyles terminal in position, the outer style glabrous, narrowed apically into a long curved spine. Aedeagus and gonapophyses usually short and relatively inconspicuous. Female with valves long and sclerotized in local species; in some extralimital forms, and in the subgenus *Hexatoma*, with the valves short and fleshy.

Eriocera is very well represented in the Eastern Palaearctic, Nearctic, Oriental and Neotropical Regions; somewhat fewer forms occur in the Ethiopian Region, with still fewer species to virtually lacking in the Western Palaearctic (Europe), where it is replaced by the typical subgenus *Hexatoma*. East of Wallace's Line, a very few species occur in Celebes, New Guinea and

eastern Australia. In Tropical America, most species seem to be tropical and subtropical in distribution with relatively few forms at the higher levels. Several unusually interesting species occur in the various islands of the Greater Antilles. No species has been found in the Chilean subregion, corresponding to its non-occurrence in New Zealand and Tasmania and great scarcity in southern Australia.

The larvae of several species of *Eriocera* have been discovered, these being virtually to entirely aquatic, going to the stream margins to pupate. The majority of the species prefer sandy or gravelly stream beds but some species inhabit the more liquid organic silt in swampy areas. The larvae of this group are strictly carnivorous and from their large size are well able to prey upon large and active types of animal life in their environment.

Cladolipes Loew. Antennae of both sexes of the local species 7-segmented. Legs with the tibial spurs long and conspicuous; claws simple. Wings (Fig. 16) with only nine veins reaching the margin, these being Sc_1 , R_{1-2} , R_4 , R_5 , M_{1-2} , M_3 , Cu_1 , 1st A and 2nd A; only two branches of Rs, both strong; outer medial veins weak and tending to become evanescent. Veins beyond cord unusually glabrous, found only on the distal section of vein R_5 .

There are only two species, the subgenotype in southeastern Europe and a local species, *Hexatoma* (*Cladolipes*) *cisatlantica* Alexander, in southeastern Brazil. As to whether a problem in geographical distribution is presented by this interesting case must remain for future studies to decide. The venation in the genus *Hexatoma* is very plastic, particularly as regards the medial field, and it seems entirely possible to me that the two species, with virtually identical venation, might have evolved independently to produce approximately the same end result. If such is not the case, we have a problem in distribution that is unusually difficult of solution.

List of Species

Cladolipes

cisatlantica Alexander. — Southeastern Brazil.

Eriocera

acuhai (Alexander). — Cuba.

aetherea (Alexander). — Hispaniola: Dominican Republic.

aglaia Alexander. — Ecuador.

amazonicola (Alexander). — Amazonian Brazil.

- andicola* (Alexander). — Northwestern Argentina.
antennata (Alexander). — Colombia.
argentina (Alexander). — Northwestern Argentina.
atrosignata Alexander. — Peru.
aurantionota Alexander. — Mexico.
batesi (Alexander). — Amazonian Brazil.
beebeana Alexander. — Venezuela.
bequaertiana Alexander. — Colombia.
bifurcata Alexander. — Venezuela.
bituberculata (Macquart). — Brazil (auct., Osten Sacken, 1869).
braconides (Enderlein). — Colombia.
breviuscula (Alexander). — Peru.
bruneri (Alexander). — Cuba.
brunneipes (Williston). — Mexico.
cabralensis Alexander. — Southeastern Brazil.
caminaria (Wiedemann). — Brazil.
candidipes (Alexander). — Venezuela.
captiosa Alexander. — Ecuador.
carrerae Alexander. — Southeastern Brazil.
chrysoptera (Walker). — Southeastern Brazil.
chrysopteroides (Alexander). — Brazil.
columbiana Alexander. — Costa Rica, Colombia.
conjuncta (Alexander). — Guatemala.
cornigera (Alexander). — Bolivia.
cramptoni (Alexander). — Jamaica.
cubensis (Alexander). — Cuba.
(dimidiata Alexander, see *semirufa*)
domingensis (Alexander). — Hispaniola: Dominican Republic.
erythraea (Osten Sacken). — Guatemala, Costa Rica.
(erythrocephala Fabricius, see *longistyla*).
exquisita (Alexander). — Costa Rica.
fasciata Guérin. — Brazil.
(fasciata Williston, see *willistoni*).
ferax Alexander. — Southeastern Brazil.
flammeinota (Alexander). — Southeastern Brazil.
flammeipennis Alexander. — Southeastern Brazil.
flaviceps (Wiedemann). — Brazil.
flavida (Williston). — Mexico.
(fuliginosa Schiner, see *schineri*).
gomesiana Alexander. — Southeastern Brazil.
goyazensis Alexander. — Central Brazil.
gracilis (Osten Sacken). — Mexico.
haemorrhoea (Osten Sacken). — Mexico.
interlineata Alexander. — Mexico, Costa Rica, Panama.
intermedia (Alexander). — Panama.
jocularis, sp. n. — Southeastern Brazil.
juliana Alexander. — Cuba.
jurata Alexander. — Southeastern Brazil.
kaieturensis (Alexander). — British Guiana, northern Brazil.
laddeyi Alexander. — Ecuador.
laticostata Alexander. — Southeastern Brazil.
lessepsi (Osten Sacken). — Panama.
longipennis (Alexander). — Venezuela.
longistyla Alexander. — British Guiana.
lopesi Alexander. — Central Brazil.
macquarti Enderlein. — Colombia.

- macrocera* (Alexander). — Amazonian Brazil.
magistra Alexander. — Ecuador.
magnifica (Alexander). — Guatemala.
manabiana Alexander. — Ecuador.
melanacra (Wiedemann). — Brazil.
melanolitha Alexander. — Mexico, Guatemala.
melina (Alexander). — Paraguay.
mesoxantha (Osten Sacken). — Mexico.
multiguttula Alexander. — Hispaniola: Dominican Republic.
myrtea (Alexander). — Brazil.
neosaga Alexander. — Venezuela.
(nigra Macquart, see *macquarti*).
nigra (Wiedemann). — Southeastern Brazil.
nigrochalybea (Alexander). — Southeastern Brazil.
obsoleta (Williston). — Honduras.
ogloblini Alexander. — Northeastern Argentina.
ohausiana (Enderlein). — Peru.
ornaticornis Alexander. — Cuba.
pallidipes (Alexander). — Mexico.
patens Alexander. — Ecuador.
perdecora (Alexander). — Peru.
perenensis (Alexander). — Peru.
perexigua Alexander. — Peru.
perlaeta (Alexander). — Colombia, southeastern Brazil.
perpulchra (Alexander). — Northern Brazil.
perrara Alexander. — Southeastern Brazil.
peruviana (Alexander). — Peru.
perversa Alexander. — Ecuador.
piatrix Alexander. — Ecuador.
plaumanni plaumanni Alexander. — Southeastern Brazil.
plaumanni lataurata Alexander. — Southeastern Brazil.
plumbeicolor Alexander. — Ecuador.
plumbeinota Alexander. — Mexico.
pretiosa (Osten Sacken). — Mexico.
propinqua Alexander. — Southeastern Brazil.
pulchripes (Alexander). — Bolivia.
reverentia Alexander. — Southeastern Brazil.
roraimella Alexander. — Venezuela.
ruficornis (Macquart). — Brazil.
rupununi Alexander. — British Guiana.
saga Alexander. — Venezuela.
santae-martae (Alexander). — Colombia.
schineri Alexander. — Venezuela.
semirufa Alexander. — Venezuela.
speciosa (Alexander). — British Guiana.
stolida Alexander. — Panama.
subgracilis Alexander. — Mexico.
sublima (Alexander). — Southeastern Brazil.
subsaga Alexander. — Peru.
substolida Alexander. — Mexico.
taenioptera (Wiedemann). — Brazil.
tenebrosa (Walker). — "South America".
tholopa (Alexander). — Southeastern Brazil.
townsendi (Alexander). — Mexico.
tranquilla (Alexander). — Southeastern Brazil.

- trialbosignata* Alexander. — Peru.
trifasciata (Röder). — Puerto Rico.
variegata Alexander. — Southeastern Brazil.
venavitta Alexander. — Southeastern Brazil.
virgulativentris (Enderlein). — Colombia.
vittanervis Alexander. — Southeastern Brazil.
williamsoni (Alexander). — Peru.
willistoni Alexander. — Mexico.
zonata (Osten Sacken). — Mexico.

Hexatoma (Eriocera) jocularis, sp. n.

Size medium (wing, female, 12.5 mm.); mesonotum gray, the praescutum with three entire dark brown stripes; scutellum obscure brownish yellow; antennae (male) 8-segmented, the basal five segments yellow, the outer three brownish black; halteres with stem yellow, knob dark brown; fore femora yellow with the outer third darkened; posterior femora yellow with two dark brown rings; wings yellow, variegated with brown, the cells beyond the cord uniformly brown; abdomen with segments one, five and six uniformly black, intermediate segments yellow, the second with its caudal and lateral borders black, the third and fourth with the posterior margins black; outer abdominal segments orange; valves of ovipositor elongate.

Male. — Length, about 14 mm.; wing, 12.5 mm.; antenna, about 3.1 mm.

Rostrum orange yellow; mouthparts dark brown; palpi with the basal two segments obscure yellow, the outer ones blackened. Antennae (male) 8-segmented; basal five segments yellow, the terminal three abruptly brownish black; flagellar segments cylindrical, the first approximately twice as long as the second and stouter. Head light orange; vertical tubercle unusually large and tumid, pruinose in front; on the declivitous anterior portion behind the antennae with a short linear impression, the summit entire.

Prothorax dark brown, sparsely pruinose. Mesonotal praescutum with the restricted ground gray, with three entire dark brown stripes, the median one broad; anterior part of praescutal interspaces more blackened, interconnecting the stripes; scutum with centers of lobes dark brown, the lateral portions blackened, median area gray pruinose; scutellum obscure brownish yellow, the cephalic and lateral portions more blackened; postnotum dark brown. Pleura chiefly dark brown, with a broad but vague more brownish yellow stripe on the sternopleurite and ventral pteropleurite. Halteres with stem light yellow, its outer

end and the knob dark brown. Legs with the coxae brownish black, very sparsely pruinose; trochanters obscure yellow; fore femora obscure yellow, with about the outer third infuscated; middle femora yellow, the tips more narrowly but abruptly dark brown, involving about the outer fifth; posterior femora yellow, the tip dark brown, with a further somewhat broader ring at near midlength, the latter more extensive than the enclosed yellow annulus; tibiae obscure yellow, the genua narrowly darkened, the tips a little more extensively so; tarsi dark brown, the outer segments black. Wings with the ground color of cells basad of cord light yellow, conspicuously variegated with medium brown, the two colors subequal in extent; cell *C*, excepting its outer end, uniformly dark brown; cell *Sc* brownish yellow; anterior prearcular field yellow, confluent with extensive areas in cells *R* and *M* and again over most of cell *1st A*; basad of cord the brown appears especially as broad seams over more than the basal half of *Rs*, outer third of *M*, over all of *Cu* and adjacent membrane to *m-cu*, confluent with a darkening in the outer fourth of cell *1st A* adjoining the vein; cell *2nd A* uniformly darkened; cells beyond cord, excepting the pale bases of *1st M*₂ and *M*₄, uniformly brown; stigma darker brown than the ground, relatively small, lying basad of vein *R*₂; veins brownish yellow, abruptly clear yellow in the brightened areas. Veins beyond cord without macrotrichia. Venation: *Sc*₁ ending just beyond fork of *Rs*, *Sc*₂ near its tip; *Rs* more than twice *R*₂₋₃₋₄; *R*₂ just beyond the fork of *R*₂₋₃₋₄, shorter than *R*₁₋₂; cell *1st M*₂ pentagonal, the first and second sections of *M*₁₋₂ and second section of *M*₃₋₄ subequal, the other elements enclosing the cell shorter; *m-cu* about one-third to one-fourth its length beyond the fork of *M*.

Abdomen with basal tergite black; tergite two yellow, broadly bordered laterally and caudally with black; tergites three and four yellow with the posterior margin broadly black; segments five and six uniformly black; outer tergites, including the genital shield, fiery orange; basal sternite black, two to four yellow, five and six black, the remainder orange. Valves of ovipositor broken in the type but evidently elongate.

Habitat: Southeastern Brazil.

Holotype, ♂, Rio de Janeiro, Km 47, December 28, 1945 (Wygodzinsky).

Most similar in its general appearance to species such as *Hexatoma* (*Eriocera*) *fasciata* (Guérin), *H. (E.) melanacra* (Wiedemann), *H. (E.) myrtea* (Alexander), *H. (E.) tranquilla* (Alexander), and others, differing conspicuously in all details of coloration of the body, legs and wings.

Atarba Osten Sacken

Atarba Osten Sacken; Mon. Dipt. N. Amer., 4: 127; 1869; (type *platicornis* Osten Sacken).

Subgenus *Ischnothrix* Bigot

?*Lachnocera* Philippi; Verh. zool.-bot. Ges. Wien, 15: 615-616, pl. 23, fig. 5; 1865; (type *delicatula* Philippi).

Ischnothrix Bigot; Miss. Sci. Cap Horn, Zool. 6: 7-8, pl. 2, fig. 1; 1888; (type *aetherea* Bigot).

Oromyia Alexander; Journ. N. Y. Ent. Soc., 21: 203-204, pl. 2, fig. 7, pl. 3, figs. 7-9; 1913; (type *lloydii* Alexander).

Orolimnophila Alexander; Ent. News, 32: 178; 1921; (re-naming of last).

A large and diverse group of small to medium-sized Tipulidae, most numerous in species in the American Tropics. Body glabrous and usually highly polished. Most of the species are yellow, unvariegated except for a subterminal dark abdominal ring in the male. A few of the local species of *Atarba* have the mesonotum patterned with black while one (*anthracina*) is uniformly polished black. Two of the three recognized subgenera, *Atarba* and *Ischnothrix*, are found in the local fauna and since the separating characters are found chiefly in the wing venation, the two groups are discussed herewith as a unit.

Antennae of the males usually of medium length, approximately one-third to one-half the length of the body or wing, longest in *tenuissima* where it is fully three times as long as the wing, shortest in *brevissima* where it is less than one-fourth the length of the wing. In species with moderately lengthened male antennae, the flagellar vestiture differs strikingly in different species or groups of species. Commonly three different types of setae are found on a single segment, including a short dense erect pubescence which in some species becomes longer and more conspicuous; in species such as *aperta*, *bifilosa*, *dasycera*, *hirticornis* and others, the segments are clothed with numerous unusually long setae that are scattered over the whole surface, interspersed with other setae of moderate length and abundant microscopic setulae; besides the setae, the stronger verticils occur, these commonly of moderate length, in some species (as *unilateralis*) with a single verticil on each segment, unilaterally distributed and of unusual length. In *nodulosa* the flagellar segments have a strong basal enlargement to produce a nodulose appearance. Many species have the antennal flagellum bicolored, in cases with the base of each segment yellow, the apex darkened, in still other species with this pattern reversed.

Middle and hind coxae widely separated by the unusually large meron. Legs with the tibial spurs present (subgenera *Atarba* and *Ischnothrix*) or lacking (*Atarbodes*); claws (male) simple or, in cases, with a basal tooth. Wings (Figs. 21-26) with vein

and cell R_3 preserved in *Ischnothrix* (Figs. 21-23), lacking in *Atarba* (Figs. 24-26) and *Atarbodes*, the loss being interpreted as having been brought about by atrophy, with vein R_3 lost. In *Ischnothrix*, vein R_3 may be long or shorter and more oblique

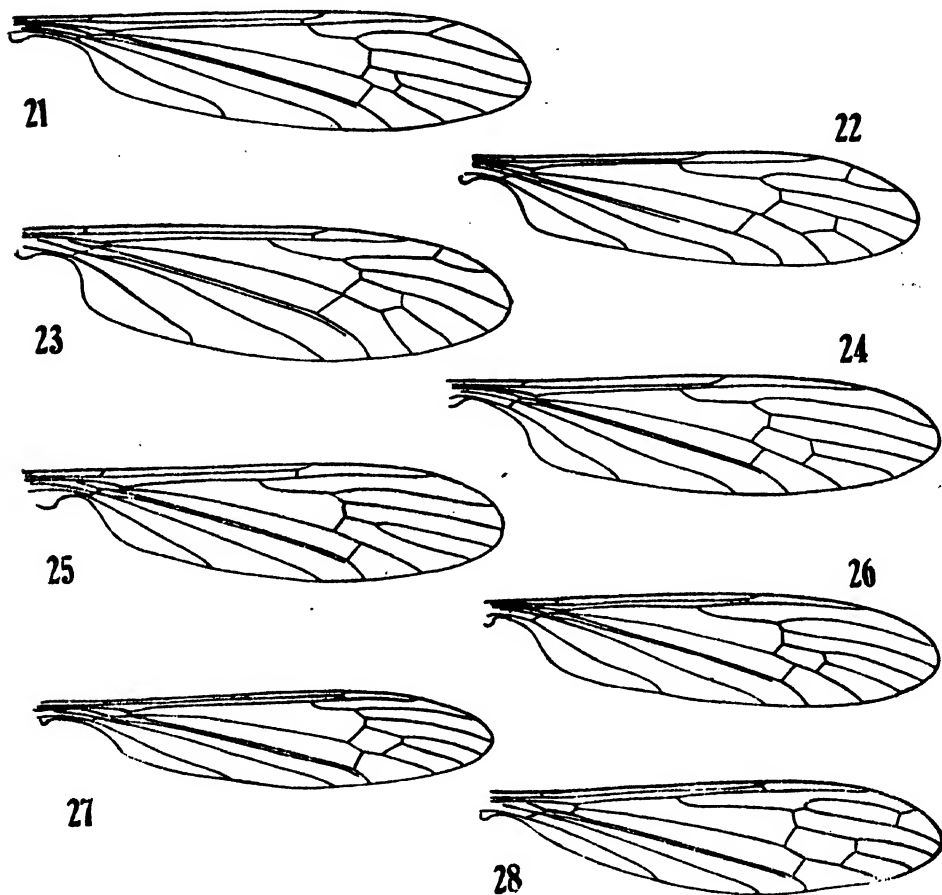


Fig. 21. *Atarba (Ischnothrix) voracis*, sp. n.; venation. — Fig. 22. *Atarba (Ischnothrix) berthae*, sp. n.; venation. — Fig. 23. *Atarba (Ischnothrix) tenuissima* Alexander; venation. — Fig. 24. *Atarba (Atarba) dasycera*, sp. n.; venation. — Fig. 25. *Atarba (Atarba) aperta* Alexander; venation. — Fig. 26. *Atarba (Atarba) bifilosa* Alexander; venation. — Fig. 27. *Elephantomyia (Elephantomyia) alticola* Alexander; venation. — Fig. 28. *Elephantomyia (Elephantomyia) supernumeraria* Alexander; venation.

in position, in the more specialized forms short and erect. Sc usually ends opposite or close to the origin of R_s ; in several species the vein is longer, ending opposite or beyond midlength of R_s , the latter vein of moderate length, in cases short, as in *brevi-sector* where it is only a little longer than the basal section of R_5 . Cell 1st M_2 generally closed, varying in shape from sub-

quadrate to rectangular; when open, as in *aperta* (Fig. 25), *patens* and others, with the basal section of M_3 atrophied.

Male hypopygium (Figs. 29-35) with a uniform basic plan but with most of the component parts showing an unusual diversity in structure, providing excellent specific characters. Caudal margin of ninth sternite in virtually all species bearing a median plate, the outer lateral angles of which are produced into spinous points, short and spurlike in many *Atarba*, long and slender in various species of *Ischnothrix*. In some species of the latter subgenus the caudal margin of the eighth sternite bears a comparable but smaller median lobe. Basistyle almost invariably with a small lobe or tubercle on mesal face near apex. Two dististyles, terminal in position; outer style heavily blackened, terminating in an acute spine, the outer margin back from this point with a series or row of spinous points, the more basal ones smaller; inner style appearing as a simple gently curved rod. Gonapophyses, *g*, varying in form, often appearing as shortened smooth blades or lobes, in other species provided with abundant spinous points. Aedeagus, *a*, very diverse in structure in the different species or groups, in several (as *bifilosa*, *bifurcula*, *dinematophora*, *laddeyana*, *punctiscuta*, and others) deeply to profoundly bifurcate. In the forms having the organ simple, some (as *cincticornis*, *religiosa*) have it very long, narrowed outwardly; in still other species the aedeagus is long but stout, more or less expanded or dilated at apex, this condition reaching its maximum in species such as *cucullata* and *megaphallus*. The smallest aedeagus in the local fauna as now known is in *microphallus*.

The center of distribution for both *Atarba* and *Ischnothrix* is in Tropical America where there are a host of species, the described ones being listed here with. Most of these species are Tropical or Subtropical but rather numerous forms of *Ischnothrix* occur throughout the Chilean subregion. Northward, only two species, both in *Atarba*, reach the United States, including the genotype, *picticornis*, common and widely distributed in the eastern United States as far north as New York and New Hampshire. Elsewhere in the world various species of *Ischnothrix* occur in Australia and New Zealand. Two peculiar species of *Atarba* are found in New Zealand. The rather numerous species of the Old World subgenus *Atarbodes* Alexander center in eastern Asia, from western China and Japan southward into the Oriental fauna, with a few further species in the eastern and southern Ethiopian region.

Professor. J. Speed Rogers has reared the type species, *picticornis*, from wet sodden logs and branches in an advanced stage of decay, the larvae feeding on the softened wet wood fibres. Pupation takes place within a silk-lined cocoon composed of wooden fibres, located near the surface of the rotten wood.

The affinities of the *Atarbaria* remain very puzzling and questionable. Earlier (Dipt. Patagonia and South Chile, 1: 167; 1929) I had discussed the problem in some detail as understood at that time and little new evidence on phylogeny has been forthcoming in the intervening years. The early assignment to the tribe Hexatomini, followed with considerable question in the present report, was based on the general morphology of the adult flies. The very large meron raises a doubt as to the correctness of such an assignment. The discovery of the immature stages by Rogers led the latter to place the group in the tribe Limoniini, in the vicinity of *Dicranoptycha*. The venation, presence of tibial spurs and the basic plan of the male hypopygium all differ from the characters of the genus *Limonia*, type of the tribe Limoniini, and the assignment of *Atarba* to this tribe must be questioned. However, the relationships with *Dicranoptycha*, as noted by Rogers, seem highly probable and would indicate that this latter genus has been incorrectly placed in the Limoniini. The resemblance of certain Chilean species of *Ischnothrix* to members of *Rhabdomastix* has been noted in earlier papers by the writer and this resemblance is so striking that some degree of relationship between the two groups seems indicated. The latter genus has been considered earlier in this series of Notes (Part III, Rev. de Entomologia, 18: 318-320; 1947) under the tribe Eriopterini, where it seems correctly assigned. It will be seen from this discussion that the true position in tribes of several of our most familiar Tipulid genera remains in question and their assignment to their present places is based chiefly on the gross morphology of the adult flies.

The genus *Lachnocera* Philippi, placed at least tentatively in the synonymy of *Ischnothrix* in the present paper, has been discussed by the writer in the report on Chilean Tipulidae, cited above. Philippi described and figured the type of this genus, *delicatula* Philippi, as having the antennal pedicel elongate. Edwards, (Dipt. Patagonia and South Chile, 1: 167, footnote; 1929) stated that an elongate pedicel was unknown otherwise in the Nematocerous Diptera but it may be noted that the Tipulid genus *Chionea* Dalman has this segment longer and even more

conspicuous than was indicated by Philippi for *Lachnocera*. In case the fly is re-discovered and its identity settled as falling in the present group, *Lachnocera* will be the oldest name available.

List of Species

Ischnothrix

- aetherea* Bigot. — Tierra del Fuego.
- argentinicola* (Alexander). — Argentina.
- berthae*, sp. n. — Southeastern Brazil.
- brevisector* Alexander. — Venezuela.
- capitella* Alexander. — Peru.
- ?delicatula* (Philippi). — South Chile.
- digitifera* Alexander. — Peru.
- fidelis* Alexander. — South Chile.
- geminata* Alexander. — Peru.
- helenae*, sp. n. — Peru.
- ignithorax* Alexander. — South Chile.
- integriloba* Alexander. — Peru.
- lloydi* (Alexander). — Colombia.
- mesocera* Alexander. — Patagonia, South Chile.
- obtusiloba* Alexander. — Peru.
- patens* Alexander. — Panama.
- picturata* (Alexander). — South Chile.
- scutellata* (Alexander). — South Chile.
- seticornis* Alexander. — Southeastern Brazil.
- supplicata* Alexander. — Peru.
- tenuissima* (Alexander). — Patagonia, South Chile.
- voracis*, sp. n. — Peru.

Atarba

- almeidai* Alexander. — Southeastern Brazil.
- amabilis* Alexander. — Mexico.
- angustipennis* Alexander. — Cuba, Mexico.
- anthracina* Alexander. — Southeastern Brazil.
- aperta aperta* Alexander. — Mexico.
- aperta subaperta* Alexander. — Panama.
- apicispinosa* Alexander. — Panama.
- bifilosa*, sp. n. — Costa Rica.
- bifurcula* Alexander. — Southeastern Brazil.
- boliviana* Alexander. — Bolivia.
- brevicornis* Alexander. — Paraguay.
- brevissima* Alexander. — Southeastern Brazil.
- brunneicornis* Alexander. — Colombia.
- bulbifera* Alexander. — Peru.
- cincticornis* Alexander. — British Guiana, Ecuador.
- circe* Alexander. — Ecuador.
- columbiana* Alexander. — Colombia.
- cucullata* Alexander. — Ecuador.
- dasycera*, sp. n. — Peru.
- diacantha* Alexander. — Ecuador.
- dinematophora* Alexander. — Peru.
- fiebrigi* Alexander. — Paraguay.
- forticornis* Alexander. — Venezuela.
- fuscoapicalis* Alexander. — Southeastern Brazil.

- heteracantha* Alexander. — Peru.
hirticornis Alexander. — Peru.
idonea Alexander. — Ecuador.
incisurata Alexander. — Southeastern Brazil.
laddeyana Alexander. — Ecuador.
longitergata Alexander. Southeastern Brazil.
macracantha Alexander. — Peru.
megaphallus Alexander. — Amazonian Brazil.
melanomera Alexander. — Peru.
merita Alexander. — Southeastern Brazil.
mexicana Alexander. — Mexico.
microphallus Alexander. — Ecuador.
multiarmata multiarmata Alexander. — Peru.
multiarmata tarmae Alexander. — Peru.
nodulosa Alexander. — Ecuador.
pallidapex Alexander. — Peru.
perincisa, sp. n. — Peru.
 (pleuralis Williston, see *Gonomyia-Paralipophleps*, Part II).
procericornis Alexander. — Ecuador.
 (puella Williston, see *Gonomyia-Lipophleps*, Part II).
punctiscuta Alexander. — Southeastern Brazil, Paraguay.
religiosa Alexander. — Mexico.
restricta Alexander. — Peru.
scabrosa Alexander. — Peru.
scutata Alexander. — Mexico.
stigmosa Alexander. — Bolivia.
tatei Alexander. — Ecuador.
tetracantha Alexander. — Ecuador.
tuberculifera tuberculifera Alexander. — Peru.
tuberculifera edax, subsp. n. — Peru.
tungurahensis Alexander. — Ecuador.
unilateralis Alexander. — Venezuela.
varicornis Alexander. — Peru.
variispina Alexander. — Southeastern Brazil.

Atarba (Ischnothrix) berthae, sp. n.

Mesonotum brown, the praescutum more reddish brown; antennae (male) short, approximately one-half the body, the flagellar segments bicolored; pleura dark brown, striped with yellow; knobs of halteres darkened; femora yellow, with a nearly terminal black ring; wings pale yellow, restrictedly patterned with brown; vein R_3 suberect; cell 1st M_2 unusually large, subequal in length to the distal section of vein M_{1-2} ; abdominal segments bicolored.

Male. — Length, about 5-5.5 mm.; wing, 6.4-6.8 mm.; antenna, about 2.5-2.7 mm.

Rostrum light brown; palpi black. Antennae (male) moderately long, approximately one-half the length of the body; scape and pedicel obscure yellow; succeeding segments brownish black, the incisures yellow, including the apex and narrower base

of each segment; longest verticils shorter than the segments; in addition to the verticils, the segments with a dense erect white pubescence. Head reddish brown.

Pronotum reduced, concealed beneath the somewhat projecting praescutum. Mesonotal praescutum reddish brown, dark brown medially behind, the lateral borders narrowly darkened; posterior sclerites of notum dark brown, sparsely pruinose; scutellum obscure yellow. Pleura conspicuously patterned with black or dark brown and yellow, the dark color occupying the dorsal sclerites from the fore coxae to beneath the wing root, more extensive behind, the ventral darkening deep brown, sparsely pruinose, the two dark stripes separated by a broad yellow longitudinal area extending from the apical half of the fore coxa across the dorsal sternopleurite, becoming wider and more diffuse on the mesepimeron. Halteres with stem pale, knob infuscated. Legs with coxae yellow, the fore pair pale brown on basal half; trochanters yellow; femora yellow, with a nearly terminal black ring, the actual apex narrowly yellow; tibiae and tarsi yellow, the outer three segments of the latter black. Wings (Fig. 22) pale yellow, restrictedly but distinctly patterned with brown, as follows: Arculus; Sc_2 and origin of R_s ; cord and outer end of cell 1st M_2 ; marginal seams at ends of all longitudinal veins except Sc_1 , best-indicated by a deepening in coloration of the veins; a further cloud at midlength of vein Cu , chiefly in cell M ; veins yellow, darkened in the patterned areas. Venation: Sc_1 ending about opposite one-fourth the length of R_s , Sc_2 opposite this origin; vein R_3 short and straight, suberect; petiole of cell R_3 nearly twice vein R_4 ; cell 1st M_2 unusually large, subrectangular, subequal in length to the distal section of vein M_{1-2} ; $m-cu$ shortly before the fork of M ; vein 2nd A nearly straight.

Abdominal segments bicolored, dark brown, the basal rings and narrower apex of the individual segments pale yellow, the latter areas more widened on their central portions; subterminal segments blackened to form a ring; hypopygium light yellow. Male hypopygium (Fig. 31) with the appendage of the ninth sternite, 9s, produced into two pale horns that are directed laterad and slightly caudad; central region of the appendage more membranous, provided with long conspicuous pale setae. Outer dististyle, d , relatively slender, the outer margin with about seven appressed spines, with two or three further weak spinulae more basad. Inner dististyle a slender, slightly longer darkened rod.

Gonapophysis, *g*, with the margins entirely smooth. Aedeagus, *a*, unusually broad, curved and slightly widened at near midlength, the apex subtruncate.

Habitat: Southeastern Brazil.

Holotype, ♂, Boracea, São Paulo, altitude 900 meters, July 22, 1947 (Lauro Travassos Filho and Rabello). Paratopotype, 1 ♂.

This entirely distinct fly is named for Mrs. Betty Travassos, wife of Lauro Travassos Filho, through whose diligent collecting we owe much of our knowledge of the São Paulo Tipulidae. The only other regional member of the subgenus is *Atarba (Ischnothrix) seticornis* Alexander, an entirely different fly with plain wings and elongate antennae in the male. In its general appearance, the present fly more resembles species of the subgenus *Atarba* but is a true *Ischnothrix*.

Atarba (Ischnothrix) helenae, sp. n.

Head and abdomen black, the entire thorax orange yellow, unpatterned; antennae of moderate length, approximately one-half the length of the body or wing, the flagellum black; wings yellow with a heavy brown pattern; male hypopygium with the appendage of the ninth sternite conspicuous, consisting of a median transverse plate, each outer lateral angle extended into a slender straight spine.

Male. — Length, about 6 mm.; wing, 6.2 mm.; antenna, about 3 mm.

Rostrum dark brown; palpi black. Antennae (male) moderately long, approximately one-half the length of the body or wing; scape dark brown, pedicel light brown, flagellum black; flagellar segments cylindrical, gradually decreasing in length and thickness outwardly; verticils very small, about one-third the length of the segment; pubescence short but abundant. Head black, the surface sparsely pruinose, more heavily so behind the antennae; anterior vertex broad, exceeding three times the diameter of the scape.

Entire thorax orange yellow, unpatterned, the praescutum and scutum more polished. Halteres brownish black, the base of stem restrictedly yellow. Legs with the coxae and trochanters yellow; remainder of legs black, the bases of the fore femora yellow, involving about the proximal fifth; tibial spurs present. Wings with the restricted ground yellow, the prearcular field brighter yellow; a heavy brown pattern, including cells *C* and *Sc*; broad seams at origin of *Rs*, cord, outer end of cell 1st *M*₂ and along vein *Cu*; cells beyond cord, especially near wing tip, even more extensively darkened, the bases of the outer radial

cells and center of cell 1st M_2 restrictedly pale; basad of cord, the ground color extensive, the darkenings appearing chiefly as broad outer margins to the cells; veins brown, yellow in the prearcular field. Venation: Sc_1 ending about opposite two-fifths R_s , Sc_2 a short distance from its tip; R_{2-3-4} long, nearly twice vein R_4 ; vein R_3 suberect, gently arcuated; cell 1st M_2 large, longer than the distal section of vein M_3 ; $m-cu$ at near one-third the length of cell 1st M_2 ; cell 2nd A relatively broad.

Abdomen, including hypopygium, black, the basal sternite obscure brownish yellow. Male hypopygium (Fig. 29) with the appendage of the ninth sternite, 9s, conspicuous, consisting of a median transverse plate, each outer lateral angle extended into a slender straight spine; caudal border of the appendage gently sinuous or submarginate; each outer lateral angle of the sternite with two or three long strong setae; submedian part, in front of the appendage, with a pale median strip, with decussate setae across this midline. Appendage of eighth sternite, 8s, a small triangular lobe. Basistyle, b , with the lobe on mesal face unusually narrowed at apex, with one or two long bristles at tip. Outer dististyle, d , slender; outer margin back from the terminal spine with about four major spines and two or three further more basal denticles. Inner dististyle a little longer, appearing as a narrow, gently curved, dark-colored rod. Gonapophysis, g , appearing as a low glabrous lobe. Aedeagus, a , short, dilated and flaring at apex.

Habitat: Peru.

Holotype, ♂, Pillao, Huanuco, altitude 2,700 meters, in fog forest, February 25, 1946 (Woytkowski).

Dedicated to the memory of my sister, Ellen Elizabeth Alexander, who was born exactly sixty years earlier than the date of capture of this fly. The fly is unusually distinct and readily separated from all other regional species. The only forms with conspicuously patterned wings are the Chilean *Atarba* (*Ischnothrix*) *aetherea* (Bigot), *A. (I.) picturata* (Alexander), and *A. (I.) tenuissima* (Alexander), which differ in all details of coloration, the greatly lengthened male antennae, and in the structure of the male hypopygium.

Atarba (*Ischnothrix*) *voracis*, sp. n.

General coloration of praescutum and scutum yellowish brown, the posterior sclerites and the pleura dark brown; antennae subequal in length to the body or wing, the segments with long outspreading verticils; vein R_3 oblique; male hypopygium with the median appendage of the eighth sternite a stout median lobe, its

apex membranous, convexly rounded; ninth sternite with two slender divergent spines; basistyle with a low cushion on mesal face near the proximal end.

Male. — Length, about 6.5 mm.; wing, 7 mm.; antenna, about 6.7-6.8 mm.

Rostrum brownish testaceous; palpi darker brown. Antennae (male) elongate, approximately equal in length to either the body or wing; scape and pedicel yellow, flagellum dark brown, the first segment a little brightened basally; flagellar segments elongate-cylindrical, with long outspreading verticils over the entire length, the longest at midlength of organ fully three-fifths the length of the segment; more scattered subappressed shorter setae, unilaterally distributed, together with a dense erect delicate pubescence of about equal length. Head dark brown, gray pruinose, front and occiput more obscure yellow.

Mesonotal praescutum and scutum chiefly yellowish brown, the former somewhat darker medially; posterior sclerites of notum dark brown. Pleura and pleurotergite dark brown, the ventral pleurites paler. Halteres with stem obscure yellow, knob dark brown. Legs with coxae testaceous yellow, the fore pair darker; trochanters obscure yellow; remainder of legs brown; tibial spurs hairy on proximal half. Wings (Fig. 21) with a weak brownish tinge, the oval sigma slightly darker brown; veins brown. Macrotrichia of veins of moderate length. Venation: Sc_1 ending about opposite one-third to one-fourth the length of R_s , the latter slightly angulated at origin; R_{2-3-4} long, gently arcuated; vein R_3 oblique, at margin separated from R_{1-2} by a distance about equal to two-thirds its own length; cell $1st\ M_2$ closed, rectangular; m subequal in length to basal section of M_3 ; $m-cu$ at near one-third the length of the cell.

Abdominal tergites brown; sternites bicolored, the incisures yellow, including the narrow bases and broader apices of the segments, the broad intervening area dark brown; subterminal segments uniformly blackened; hypopygium yellow. Male hypopygium (Fig. 30) with the appendage of the ninth sternite, $9s$, appearing as two slender divergent spines, the basal union very short, on either side with a cushion bearing several strong setae. Eighth sternite, $8s$, with a stout median lobe, the basal three-fourths nearly parallel-sided and weakly sclerotized, the apex pale, membranous, convexly rounded. Basistyle, b , with the usual slender lobule on mesal face before apex and with a low densely hairy lobe on mesal face near cephalic end. Outer dististyle,

d, a gently curved blackened rod, the outer margin of apical half with about a dozen appressed black spines, the lower surface with two or three similar ones. Inner dististyle approximately as long, shaped like a narrow boomerang, the surface with scattered punctures. Phallosome, *p*, entirely pale.

Habitat: Peru.

Holotype, ♂, Chinchao, Huanuco, altitude 2,500 meters, on wooded hills, November 4, 1946 (George Woytkowski). Paratopotypes, ♂♂.

Among similar regional forms, the present fly is closest to *Atarba* (*Ischnothrix*) *integriloba* Alexander, differing in the details of structure of the male hypopygium, as the lobe of the eighth sternite.

Atarba (*Atarba*) *bifilosa*, sp. n.

General coloration of thorax medium brown, unpatterned; antennae (male) brown, very long, considerably exceeding in length either the body or wing; legs brownish yellow; wings with a weak brownish tinge, unpatterned; *Sc* long, *Sc*₁ ending about opposite two-thirds to three-fourths the length of *Rs*; cell 1st *M*₂ closed; abdominal segments bicolored, brown basally, the outer half yellow; eighth segment uniformly blackened; male hypopygium with the gonapophyses smooth, without spines; aedeagus elongate, deeply bifid.

Male. — Length, about 5.5-5.8 mm.; wing, 5.2-5.7 mm.; antenna, about 7.5 mm.

Rostrum testaceous; palpi dark brown. Antennae (male) very long, considerably exceeding in length either the body or wing, brown; flagellar segments elongate-cylindrical with very long erect delicate setae, on the first flagellar segment exceeding one-third the length of the segment, on the sixth segment almost as long as the segment itself. Head brown; anterior vertex narrow, subequal in diameter to the scape.

Thoracic dorsum medium brown, unpatterned; pleura somewhat more yellowed. Halteres with stem testaceous, knob weakly infuscated. Legs with the coxae and trochanters yellow; remainder of legs brownish yellow to yellow, the outer tarsal segments a trifle darker; tibial spurs conspicuous. Wings (Fig. 26) with a weak brownish tinge, the prearcular and costal fields slightly more yellowed; veins pale brown, more brownish yellow in the brighter areas. Venation: *Sc* long, *Sc*₁ ending about opposite two-thirds to three-fourths *Rs*, *Sc*₂ near its tip; branches of *Rs* virtually parallel to one another for their entire lengths; *m-cu*

at near midlength of cell 1st M_2 or more than its own length beyond the fork of M .

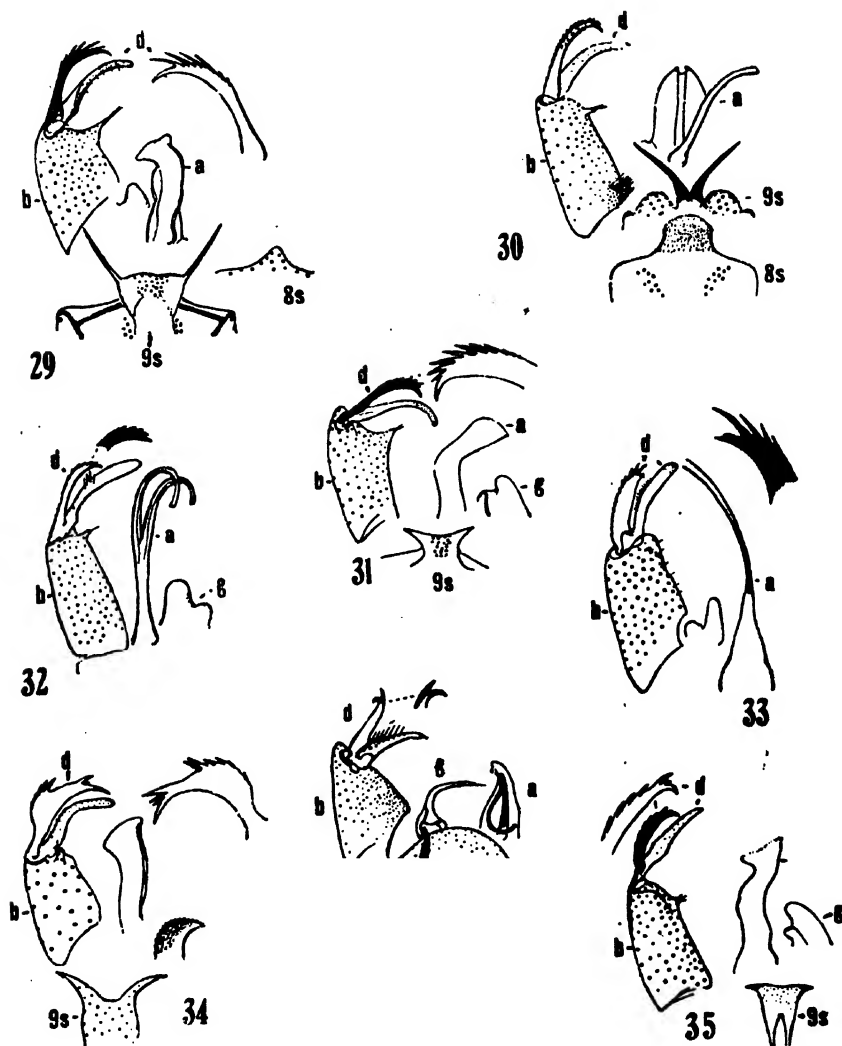


Fig. 29. *Atarba (Ischnothrix) helenae*, sp. n.; male hypopygium. — Fig. 30. *Atarba (Ischnothrix) voracis*, sp. n.; male hypopygium. — Fig. 31. *Atarba (Ischnothrix) berthae*, sp. n.; male hypopygium. — Fig. 32. *Atarba (Atarba) bifilosa* Alexander; male hypopygium. — Fig. 33. *Atarba (Atarba) dasycera*, sp. n.; male hypopygium. — Fig. 34. *Atarba (Atarba) perincla*, sp. n.; male hypopygium. — Fig. 35. *Atarba (Atarba) tuberculifera edax*, subsp. n.; male hypopygium. — Fig. 36. *Elephantomyia (Elephantomyia) primigenia*, sp. n.; male hypopygium. — (Symbols: a, aedeagus; b, basistyle; d, dististyle; g, gonapophysis; s, sternite).

Abdominal segments bicolored, brown basally with the outer half yellow; eighth segment uniformly brownish black to form a narrow ring; hypopygium yellow. Male hypopygium (Fig. 32) with the outer dististyle, *d*, having about six or seven long

appressed spines on outer margin before the somewhat stouter apical one, the more basal spines much smaller and finally obsolete. Inner dististyle longer, appearing as a pale paddle-like structure, on outer margin just before midlength with about five strong setae. Aedeagus, *a*, elongate, deeply bifid, as illustrated. Gonapophyses, *g*, entirely smooth, without spines, the apex obtuse. I am unable to detect an appendage on the ninth sternite in the single microscope slide available.

Habitat: Costa Rica.

Holotype, ♂, La Suiza de Turrialba, July (Pablo Schild); Alexander Collection, through kindness of A. L. Melander.

Among the described species of the genus having vein *Sc* long and the aedeagus deeply bifid, the present fly comes closest to *Atarba* (*Atarba*) *laddeyana* Alexander, a quite different fly. All other species having *Sc* long have the structure of the male hypopygium, particularly the aedeagus, entirely different.

Atarba (*Atarba*) *dasycera*, sp. n.

General coloration of mesonotum brown; antennae (male) elongate, subequal to the body or wing, the flagellar segments with abundant very long outspreading setae; femora obscure yellow, the tips weakly darkened; wings with a strong brown suffusion; *Sc* long, *Sc*₁ ending about opposite midlength of *Rs*; male hypopygium with the outer dististyle relatively broad, before apex on outer face with four or five strong black spines; aedeagus profoundly forked into two elongate blackened arms.

Male. — Length, about 5 mm.; wing, 5.5 mm.; antenna, about 5 mm.

Rostrum and palpi brown. Antennae (male) elongate, subequal to the body, brown, the incisures of the more proximal flagellar segments a trifle darker; flagellar segments elongate-cylindrical, with very long erect setae scattered over the length, on the intermediate segments the longest of these only a little shorter than the segment itself, others about three-fourths this length. Head brown.

Mesonotum chiefly dark brown, the median region of scutum and sublateral areas on praescutum vaguely brownish yellow. Pleura infuscated dorsally, becoming paler below, the ventral areas and sternites pale yellow. Halteres with stem dusky, knob dark brown. Legs with the coxae and trochanters testaceous yellow; a single leg (hind) remains; femora obscure yellow, the tips weakly

darkened; tibiae yellow, the tips even more narrowly infuscated; tarsi obscure yellow, the outer segment darkened; tibial spurs distinct. Wings (Fig. 24) with a strong brown suffusion, the prearcular and narrow costal region slightly darker; a narrow and vague darkening over the anterior cord, best-indicated by a deepening in the color of the veins, the remaining veins brown. Venation: *Sc* long, *Sc*₁ ending about opposite midlength of *Rs*, *Sc*₂ a short distance from its tip; branches of *Rs* parallel to one another throughout their length, cell *R*₂ at margin thus much more extensive than cell *R*₄; *m-cu* at near one-third the length of cell 1st *M*₂.

Abdomen dark brown, the incisures even darker, brownish black; hypopygium brownish black. Male hypopygium (Fig. 33) with the appendage of the ninth sternite, *9s*, if normally present, not evident in the microscope slide. Basistyle, *b*, without a well-developed lobe on the mesal face near apex, as common in the genus, this replaced by a low setiferous tubercle. Outer dististyle, *d*, relatively broad, with appressed spines down virtually the entire outer face but only the outer four or five of these blackened and conspicuous, the outer spines larger; terminal spine shorter than the subapical one. Inner dististyle longer than the outer style, a nearly straight to slightly curved blade, its apex obtuse; outer margin of proximal half with a row of about a dozen conspicuous setae. Aedeagus, *a*, single on less than the basal half, thence dividing into two long slender blackened rods or arms. Gonapophyses appearing as simple smooth elongate blades.

Habitat: Peru.

Holotype, ♂, Previsto, Upper Ucayali River, Loreto, altitude 900 meters, September 11, 1947 (Schunke).

This very distinct fly is closest perhaps to *Atarba* (*Atarba*) *bifilosa*, sp. n., in the long *Sc* and profoundly bifid aedeagus of the male. It differs in all details of structure of the antennae and male hypopygium. In its antenna, the present fly most resembles *A. (A.) hirticornis* Alexander, which has *Sc* short and the aedeagus simple.

Atarba (*Atarba*) *perincisa*, sp. n.

Allied to *multiarmata*; pronotum and praescutum light brownish yellow, the scutum and scutellum more chestnut; postnotum and dorsal pleurites brownish black; antennae (male) elongate, flagellum dark brown; legs yellow, the tips of the fore femora weakly darkened; wings with a weak brownish tinge,

restrictedly patterned with darker brown; a broad subhyaline band before cord; Sc_1 ending about opposite one-third the length of Rs ; male hypopygium with the caudal margin of the sternal appendage emarginate; outer dististyle broadest at near midlength, the outer margin at this point with a concentration of spines; beyond this point the style is narrowed, terminating in fewer points; gonapophyses with abundant spinous points.

Male. — Length, about 5 mm.; wing, 5.5 mm.; antenna, about 4 mm.

Female. — Length, about 5.5 mm.; wing, 6 mm.

Rostrum yellow; palpi yellow, the long conspicuous terminal segment brownish black. Antennae (male) elongate, nearly two-thirds as long as wing; scape and pedicel yellow, flagellum dark brown; flagellar segments elongate-cylindrical, clothed with an abundant erect white pubescence; verticils solitary on each segment, on the intermediate ones approximately one-third as long as the segment. Antennae of female shorter. Head dark brown.

Pronotum and praescutum light brownish yellow, the scutum and scutellum somewhat more chestnut; postnotum and dorsal pteropleurite brownish black, the remaining pleurites more uniformly yellow. Halteres with stem yellow, knob infuscated. Legs with all coxae and trochanters yellow; remainder of legs yellow, the tips of the fore femora weakly darkened. Wings with a weak brownish tinge, the prearcular and costal regions clearer yellow; stigma oval, brown, the region of the cord paler brown; a broad subhyaline band before cord; a poststigmal pale area; veins pale brown, darker in the more patterned areas, pale in the brightened portions. Venation: Sc_1 ending about opposite one-third Rs , Sc_2 near its tip; $m-cu$ nearly one-half its length beyond the fork of M , at near one-third the length of cell $1st\ M_2$.

Abdomen (male) bicolored; basal segments dark brown; succeeding segments yellow basally, more extensively dark brown on posterior portion, the amount of dark color increasing on the outer segments to form a more uniform subterminal ring; hypopygium yellow. Male hypopygium (Fig. 34) with the appendage of the ninth sternite, $9s$, elongate, entirely pale, the outer apical angles produced into strong horns; caudal margin with a U-shaped emargination. Outer dististyle, d , broadest at near midlength, at this point on outer margin with a concentration of six or seven blackened spines, the largest ones more distad; beyond this point the style narrows, terminating in a long slender

curved spine, with three or four smaller spines immediately before this point. Inner dististyle relatively narrow, weakly darkened, at near midlength bent virtually at a right angle, the apex obtuse; surface of style with numerous small setae. Aedeagus, *a*, dilated and moderately flaring at apex. Gonapophyses, *g*, with abundant spinous points.

Habitat: Peru.

Holotype, ♂, Chanchamayo, Junin, altitude 1,400 meters, April 28, 1941 (Schunke). Allotopotype, ♀, pinned with type.

The most similar species is *Atarba* (*Atarba*) *multiarmata* Alexander, which differs in the coloration of the body and wings and in the structure of the male hypopygium, including the sternal appendage and outer dististyle.

Atarba (*Atarba*) *tuberculifera edax*, subsp. n.

Male. — Length, about 7.5 mm.; wing, 8.2 mm.; antenna, about 3 mm.

Female. — Length, about 7-8 mm.; wing, 8-9 mm.

Close to typical *tuberculifera* Alexander, differing especially in the details of structure of the male hypopygium. In the type and allotype the dark femoral rings are broad and nearly terminal in position; in the larger female paratype, these rings are narrower, subequal to or a trifle wider than the pale tips. In all specimens the dark rings of the posterior femora are a trifle narrower than those of the other legs.

Male hypopygium (Fig. 35) with the appendage of the ninth sternite, *9s*, divided anteriorly, widened at posterior end, the outer lateral angles extended into stout darkened horns; posterior margin of appendage between the horns very gently emarginate; surface with very numerous pale setae. Outer dististyle, *d*, very narrow, blackened throughout, the outer margin with spines on the outer two-thirds or more, the more basal ones small, the succeeding six or seven strong but appressed; terminal spine small, the subterminal one much smaller than the antepenultimate; no spines or serrulations on lower face of style. Inner dististyle broad-based, gradually narrowed outwardly, the tip obtuse; surface of style with relatively numerous scattered setae. Aedeagus, *a*, stout, dilated and flaring at apex, without the tubercle on margin found in the typical form. Gonapophyses, *g*, unequally bilobed, the principal lobe or blade pale, the margins entirely smooth, obtuse.

Habitat: Peru.

Holotype, ♂, Sariapampa, Huanuco, altitude 3,600 meters, in fog forest, May 12, 1946 (Woytkowski). Allotopotype, ♀, pinned with type. Paratopotype, 1 ♀, May 10, 1946 (Woytkowski).

Elephantomyia Osten Sacken

Toxorhina Loew; Bernstein und Bernsteinfauna, p. 36; 1850; (nomen nudum).

Toxorhina Loew; Linnaea Ent., 5: 400 (in part); 1851.

Elephantomyia Osten Sacken; Proc. Acad. Nat. Sci. Philadelphia 1859: 220; 1859; (type *westwoodi* Osten Sacken, as *canadensis* Westwood, in error).

Subgenus *Elephantomyina* Alexander

Elephantomyia (*Elephantomyina*) Alexander; Ann. Mag. Nat. Hist., (11) 1: 349; 1938; (type *supernumeraria* Alexander).

Medium sized flies, distinguished chiefly by the greatly lengthened rostrum. Three subgenera, two of which are in the local fauna, are commonly recognized.

Entire front of head drawn out into a slender rostrum, commonly as long as or longer than the entire body, in some, as the southwestern Nearctic *curtirostris* Alexander, short, only about two-fifths the length of the body or wing; palpi reduced, placed at apex of rostrum. Antennae commonly 15-segmented, the basal two flagellar segments united into a fusion-segment; succeeding segments cylindrical, with unusually long verticils that may be fully three times the length of the segments. Head with eyes large to very large, especially in the males, the anterior vertex correspondingly narrowed.

Tibial spurs commonly present, lacking in some species of the typical subgenus and in the subgenus *Elephantomyodes*; vestiture of legs of normal setae, not bifid as in the superficially similar *Toxorhina* (see Part III of this series of Notes). Wings (Figs. 27, 28) with vein R_2 lacking; three branches of R , interpreted as being R_{1-2} , R_4 and R_5 ; the two latter veins commonly elongated, extending generally parallel to one another; $r-m$ connecting with R_5 or (*Elephantomyina*, Fig. 28) with R_s before the fork. Cell 1st M_2 large, subquadrate to rectangular in outline, with $m-cu$ some distance beyond the fork of M ; cell 2nd A normally broad, very narrow in *luteiannulata* and others; anterior arcus preserved. In the subgenus *Elephantomyina* with a supernumerary crossvein in cell R_3 (Fig. 28).

Male hypopygium (Fig. 36) with the dististyles terminal, commonly with the outer style slender, glabrous, bifid at tip, in

cases shorter and stouter; in *tigriventris* the outer style with numerous spinulae on outer third, somewhat suggesting the condition found in the genus *Atarba*. Penis commonly greatly elongated into a hairlike coiled penefilum, sometimes very long (as in *angustissima*, *tenuissima*, and others); in other species, as *primitiva*, aedeagus short and simple, with little extension of the penis. Gonapophyses lying far laterad, more or less in the position normally occupied by the interbases when the latter are present, appearing as flattened, inwardly directed blades. Ovipositor with elongate valves.

Elephantomyia is widely distributed throughout the major regions of the World, including Europe and New Zealand, being especially numerous in species in the Neotropics and Ethiopian Region. The Antarctic fauna includes species in New Zealand, Tasmania and Chile. The antiquity of the genus is shown by its occurrence in the Baltic Amber. *Elephantomyia* is still known only from the subgenotype. The Old World subgenus *Elephantomyodes* Alexander, distinguished by peculiarities of venation, in addition to the loss of the tibial spurs, is essentially Oriental but with numerous species in the Australasian fauna as far east as New Guinea.

The immature stages occur in the wet decaying wood of various species of hardwood trees.

As was indicated under the discussion of the genus *Toxorhina* in an earlier part under this series of Notes (III. Rev. de Entomologia, 18: 356-357; 1947), considerable confusion in the use of the names *Aporosa* Macquart, *Toxorhina* Loew, and *Elephantomyia* is found in the early literature. As it pertains to *Elephantomyia*, the situation is as follows: In the 1850 paper by Loew, cited in the synonymy, the author mentioned but did not describe in any manner three species of flies. The succeeding year these naked names were validated but were included with a fuller discussion of a fly now called *Toxorhina fragilis* which is held to be the true type of the genus. The three Amber species in these papers were recognized as belonging to a distinct genus to which Osten Sacken gave the name *Elephantomyia* and it is in this latter sense that the name is used in the present paper.

As previously indicated the affinities of the Elephantomyaria remain much in doubt and the assignment to the higher Hexatomini may be held in question. Some species of *Helius* St. Fargeau have the rostrum lengthened and thus approach the condition found

in the short-beaked members of the present genus. Furthermore there are decided points of resemblance in the male hypopygia of the two groups and these genera may be more closely allied than is at present recognized. The only other genus in the local fauna having the rostrum greatly lengthened and homologous in structure with that of the present group is *Toxorhina* Loew.

List of Species

Elephantomyia

supernumeraria Alexander. — Ecuador, Peru.

Elephantomyia

- alticola* Alexander. — Mexico.
angustissima Alexander. — Mexico.
arcuaria Alexander. — Panama.
banksi Alexander. — Panama.
boliviensis Alexander. — Bolivia.
brunneipennis Alexander. — Ecuador.
chionopoda Alexander. — Peru.
chiriquiana Alexander. — Panama.
clitellaria Alexander. — Chile.
fumipes Alexander. — Mexico.
humilis Alexander. — Colombia.
juquiensis Alexander. — Southeastern Brazil.
(longirostris Williston, see *willistoni*).
luteiannulata luteiannulata Alexander. — Mexico.
luteiannulata chiriquiensis Alexander. — Panama.
pictiventris Alexander. — Ecuador, Peru.
primitiva Alexander. — Ecuador.
primogenia, sp. n. — Southeastern Brazil.
setulistyla Alexander. — Ecuador.
subhumilis Alexander. — Ecuador.
tarsalba Alexander. — Surinam.
tenuissima Alexander. — Peru.
tigriventris Alexander. — Ecuador.
westwoodi antillarum Alexander. — Cuba.
willistoni Alexander. — Lesser Antilles: St. Vincent.

Elephantomyia (Elephantomyia) primogenia, sp. n.

General coloration of mesonotum light brown, the praescutum with three slightly darker stripes; thoracic pleura obscure yellow, virtually unpatterned; femora brown, the tibiae and tarsi darker brown; tibial spurs distinct; wings with a brownish gray tinge; stigma oval, pale brown; narrow and inconspicuous seams over cord and outer end of cell *1st M*₂; branches of *Rs* diverging very gradually to the margin; male hypopygium with the outer dististyle

blackened, divided at apex into two spines; aedeagus stout, the penefilum unusually short and stout.

Male. — Length, excluding rostrum, about 8 mm.; wing, 8.5 mm.; rostrum, about 6 mm.

Female. — Length, excluding rostrum, about 11 mm.; wing, 9.5 mm.

Rostrum elongate, dark brown. Antennae brownish black, the scape slightly pruinose; outer flagellar segments broken. Head brownish gray; anterior vertex (male) narrow, a little less than the diameter of scape; head of the only available female lacking with exception of outer half of rostrum.

Pronotum and posterior sclerites of mesonotum light brown, the praescutum more reddish brown with three slightly darker brown stripes, the median one broader and more distinct, especially on anterior half. Pleura and pleurotergite obscure yellow or brownish yellow, virtually unpatterned; dorsopleural region and a small elevated area before the wing root slightly darker brown. Halteres pale, the knob a very little darker. Legs with the fore and middle coxae weakly infuscated, the posterior pair light yellow; femora brown, tibiae and tarsi darker brown; tibial spurs, at least on hind legs, long and distinct. Wings with a brownish gray tinge, the prearcular field a trifle paler; stigma oval, pale brown; narrow and inconspicuous pale brown seams over cord and outer end of cell *1st M*₂; a similar wash at base of cell *Cu*, continued outward along vein *Cu*; veins light brown. Venation: *Sc*₁ ending just before level of fork of *Rs*, *Sc*₂ near its tip; branches of *Rs* diverging very gradually, cell *R*₂ at margin a little more extensive than cell *R*₃; cell *1st M*₂ subrectangular, about equal in length to the distal section of vein *M*₃; *m-cu* at near two-thirds the length of cell *1st M*₂; cell *2nd A* moderately broad.

Abdomen chiefly dark brown, the lateral and posterior margins of the tergites paler brown, more unicolorous brown in female; subterminal segments brownish black, forming a ring; hypopygium with styli light yellow. Male hypopygium (Fig. 36) with the dististyles, *d*, slightly subterminal in position; outer style a little shorter and more slender than the inner one, divided at apex into two spines, the axial one a little less curved; inner style with long conspicuous pale setae along outer margin. Gonapophyses appearing as strongly curved rods or blades, the

tips produced into slender pale points. Aedeagus, *a*, stout, the penefilum unusually short and stout, when compared with most other species.

Habitat: Southeastern Brazil.

Holotype, ♂, Theresopolis (Terezopolis), Rio de Janeiro, altitude 1,000 meters, October 1942 (Lauro Travassos Filho). Allotopotype, ♀.

From other regional species having the aedeagus and penefilum of the male hypopygium relatively unmodified, including *Elephantomyia* (*Elephantomyia*) *primitiva* Alexander and *E. (E.) tigriventris* Alexander, the present fly differs conspicuously in the size, coloration, and details of structure of the male hypopygium.

Sobre Alguns Reduviidae da Região Amazônica (Hemiptera).

Por Petr Wygodzinsky, Instituto de Medicina Regional, Tucumán.

(Com 17 figuras no texto)

O presente trabalho contém notas sobre vários *Reduviidae* da região amazônica, cujo estudo nos foi possibilitado pelos seguintes colegas: J. Bequaert, Museum of Comparative Zoology, Harvard University, Cambridge, Mass.; H. C. Blöte, Rijksmuseum van Natuurlijke Historie, Leiden; M. A. Cazier, American Museum of Natural History, New York; D. C. Geijskes, Landbouwproefstation, Paramaribo; L. Hoberlandt, Museo Nacional, Praga; R. Malaise, Naturhistoriska Riksmuseum, Stockholm; Sra. G. Montet, Naturhistorisches Museum, Berna; e W. Weyrauch, agora Museo de Historia Natural "Javier Prado", Lima. Agradecemos a todos estes colegas pelo auxílio prestado.

Subfamília *Apiomerinae*

Agriocoris flavipes (Fabricius, 1803)

Agriocoris flavipes (Fabricius, 1803).
Reduvius flavipes Fabricius, 1803.
Hemiarthes curvipes Signoret, 1862.
Agriocoris fasciata Stål, 1872.

Localidades: Rio Autaz, Amazonas, Brasil, Agosto, Outubro, Novembro, Roman col. (9 ♂♂, 5 ♀♀); Rio Purus, Amazonas, Brasil, Roman col. (1 ♂); Manaus, Amazonas, Brasil, Março e Dezembro, Roman col. (2 ♂♂, 2 ♀♀). (Material no Museo Stockholm, no Instituto de Ecologia e Experimentação Agrícola, Rio de Janeiro, e na coleção do autor).

Esta espécie, de grande distribuição geográfica, varia bastante quanto à distribuição do pigmento escuro dos hemélitros, como se depreende das notas publicadas por vários autores. Possivelmente trata-se de raças geográficas.

A forma dos lóbulos salientes dos ângulos póstero-laterais do pronoto também é muito variável; existem exemplares onde estes lóbulos são muito salientes, e outros, da mesma procedência, onde os lóbulos são quase imperceptíveis; e também existem transições entre estes dois extremos. Por conseguinte, este caráter não pode ser considerado de valor específico. Sendo assim, propomos a sinonímia acima registrada.

Examinamos a genitália de machos que representam limites extremos quanto à variação do pronoto acima mencionada. As diferenças encontradas não ultrapassam os limites da variação in-

dividual. O aedeagus é do feitio característico dos *Apiomerinae* americanos; a sua forma é representada nas figuras 1-4. O aspecto do hipopígio com seu processo mediano é bem demonstrado por Champion (1899, pl. 14, fig. 4), onde se encontra também uma excelente figura do aspecto geral do inseto. O cláster é figurado em nossa fig. 5. — A genitália da fêmea é quase inteiramente coberta pelo 7.º esternito e o conjunto do 9.º e 10.º tergito, que é dobrado para baixo e escavado no meio (fig. 6). Os lobos do 8.º esternito (fig. 7) são grandes e providos de cerdas espiniformes fortes. As gonapófises anteriores (fig. 7a) são muito reduzidas e aparecem apenas como escleritos delicados e sem pêlos. Igualmente muito reduzidos e sem pêlos se apresentam as gonapófises medianas (fig. 8). As gonapófises posteriores formam um só conjunto (fig. 9), com 1+1 processos laterais providos de cerdas espiniformes numerosas, e um processo mediano provido de 1+1 cerdas espiniformes longas e fortes.

O ovo, extraído de uma fêmea examinada (fig. 10), é relativamente pequeno e largo; a sua superfície é lisa; seu opérculo é simples.

Apiomerus lituratus Stal, 1872

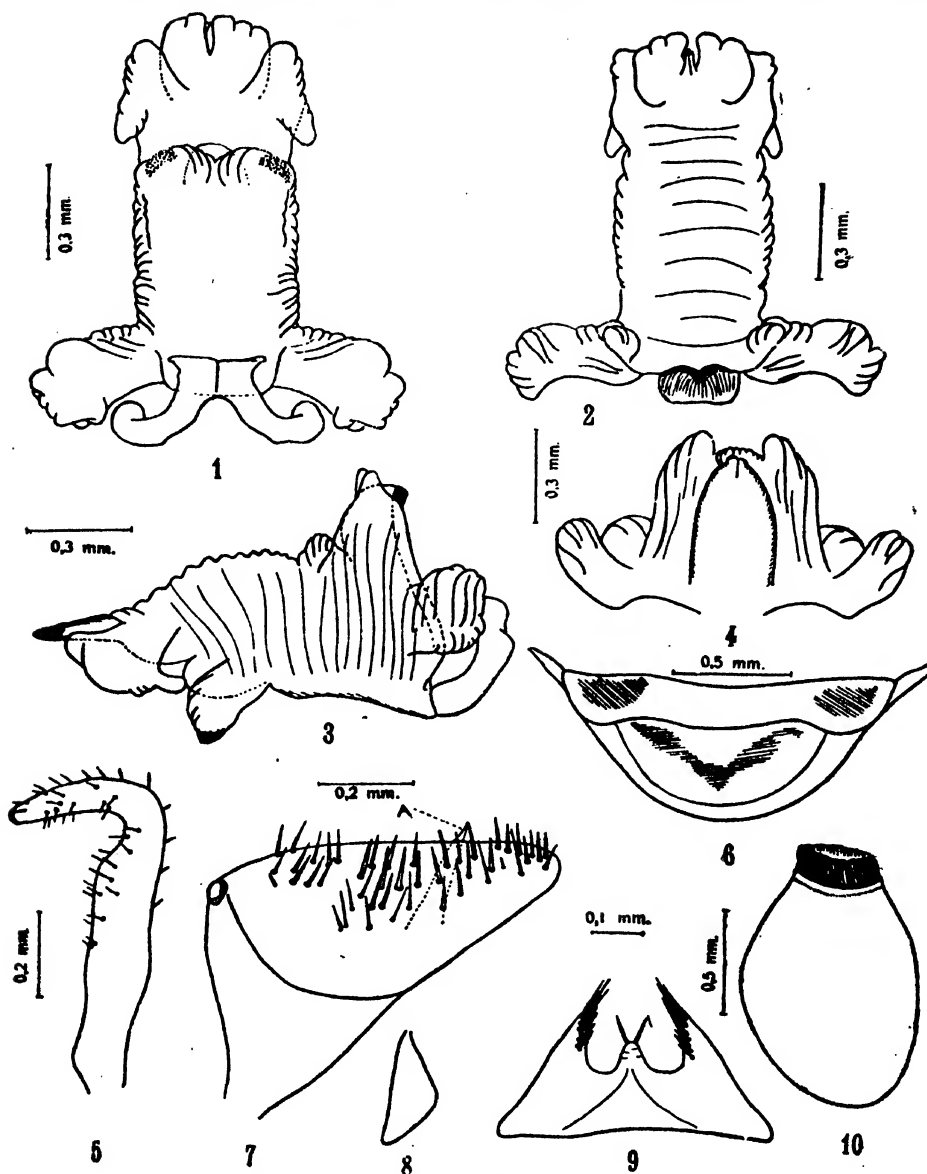
Localidade: M. H. de Mathan, Óbidos, 1904/1905 (1 ♀, Museo Berna).

Beharus cylindripes (Fabricius, 1803)

Localidades: Brasília borealis (1 ♂, Mus. Stockholm, 1 ♂, I.E.E.A.); Tumatumari, Guiana Britânica, Aug. 18, 1911 (1 ♀, American Museum of Natural History); Tukeit, Guiana Britânica, 19/27-7-1911 (1 ♂, 1 ♀, A.M.N.H.).

Calliclopius nigripes (L., 1767)

Localidades: Óbidos, Pará, Brasil, 1904, Lecoite col. (1 ♂, Mus. Berna); Rio Autaz, Amazonas, Roman col. (1 ♂, Mus. Stockholm, 1 ♂, I.E.E.A.); Marowijne River, Poeloegoedoe, Suriname, 30-8-1939, Bosch, Geijskes col. (1 ♂, col. autor); Paramaribo, Charlesburg, Suriname, 13-2-1940, Geijskes col. (1 ♂, col. autor); Paramaribo, Suriname, Cultuurtuin, 3-2-1939 (1 ♀, col. autor); Punta Gorda, Honduras Britânica, 2-1931, J. J. White col. (1 ♂, col. autor).



Agrilicoris flavipes (Fabricius). — Fig. 1. Aedeagus do macho, aspecto ventral. — Fig. 2. Aedeagus, aspecto dorsal. — Fig. 3. Aedeagus, aspecto lateral. — Fig. 4. Aedeagus, parte apical, aspecto frontal. — Fig. 5. Clasper. — Fig. 6. Conjunto do 9º e 10º tergito da fêmea, aspecto distal. — Fig. 7. Lobo do 8º esternito, com gonapófise anterior (A). — Fig. 8. Gonapófise mediana. — Fig. 9. Gonapófise posterior. — Fig. 10. Ovo. (Wygodzinsky del.)

Calliclopius nigripes albipennis Stal, 1872

Localidades: Mt. Duda, Venezuela, 27-10-1928 (1 ♀, A.M.N.H., Ac. 29500, Tate no. 75); Mt. Duda, Venezuela, 11-3-1929 (1 ♂, A.M.N.H., Ac. 29500, Tate no. 829).

Heniartes flavicans (Fabricius, 1796)

Localidade: Kamakusa, Guiana Britânica, 1-1923 (1 ♂, A.M.N.H., Ac. 24895).

Heniartes tumatumari Wygodzinsky, 1947

Localidades: Kamakusa, Guiana Britânica, 1-1923 (4 ♂♂, 2 ♀♀, A.M.N.H., 1 ♂, col. autor); Kaieteur, Guiana Britânica, 19/24-7-1911 (4 ♂♂, A.M.N.H.).

Manicocoris rufipes (F., 1787)

Localidades: Manaus, Amazonas, Brasil, Roman col. (1 ♂, 2 ♀♀, Mus. Stockholm, 1 ♂, I.E.E.A.); Litanie, Fetikreek, Suriname, 12-8-1939, Geijskes col. (2 ♂♂, col. autor); idem, 13/14-7-1939 (1 ♂, 1 ♀, col. autor); Marowijne River, Suriname, 3-8-1939, Geijskes col. (2 ♂♂, col. autor); Coppename, Suriname, 7-12-1943, Geijskes col. (1 ♂, col. autor); Rechter Coppename, Lager III, km 15, ze kamp op boom, 20-10-1943, Geijskes col. (1 ♀, col. autor); Wilhelmine Gebergte, Suriname, Lager I, km 3.2, in bosch vliegend, 2-9-1943, Geijskes col. (1 ♂, col. autor); Pará, Brasil, 10-9-1901 (1 ♀, Museo Berna); Kamakusa, Guiana Britânica, Jan. 1923 (3 ♂♂, 1 ♀, A.M.N.H., acc. 24859); Tukeit, Guiana Britânica, 16/20-7-1911 (2 ♀♀, A.M.N.H.); Chenapown to Saveritik, Guiana Britânica, 23-8-1911 (1 ♀, A.M.N.H.); Guiana Britânica, from Geo. Franck, 4-5-1909 (1 ♀, A.M.N.H.).

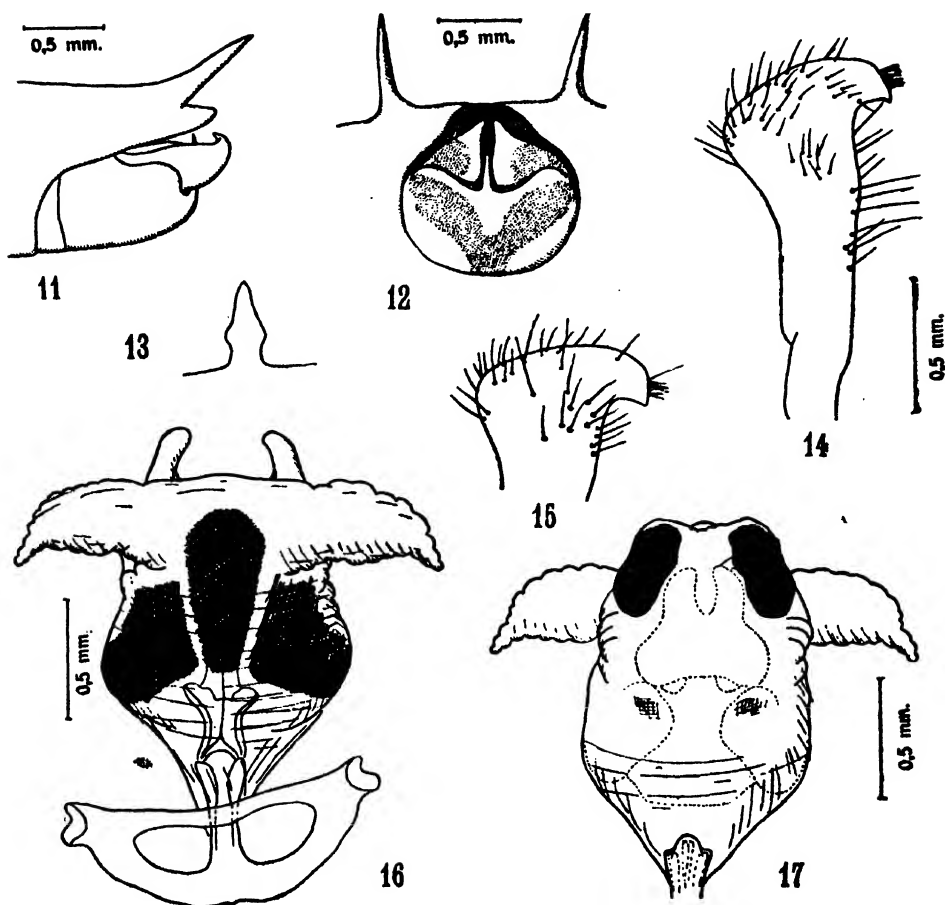
Micrauchenus lineola (Fabricius, 1787)

Localidades: Belém, Pará, Brasil, 1931, Benedito Nogueira col. (1 ♂, Def. San. Veg., São Bento); Óbidos, Pará, Brasil, 1904, Lecointe (1 ♀, Museo Berna); Muratucú, Pará, Brasil, 15-4-1903 (1 ♂, Mus. Berna); Rio Uatuma, Amazonas, Brasil, Jan. 1944, W. Praetorius coll., Donor Frank Johnson (2 ♀♀, A.M.N.H.); Kamakusa, Guiana Britânica, Jan. 1923 (3 ♀♀, A.M.N.H., acc. 24895).

Ponerobia bipustulata (Fabricius, 1781)

Localidades: Kamakusa, Guiana Britânica, 1-1923 (4 ♂♂, 2 ♀♀, A.M.N.H., acc. 25895); Tukei, Guiana Britânica, 21-7-1911 (1 ♂, A.M.N.H.); Georgetown, Guiana Britânica, 6-7-

1911 (1 ♂, A.M.N.H.); Tumatumari, Guiana Britânica, 11-7-1911 (1 ♀, A.M.N.H.).



Salyavata variegata A. & S., macho. — Fig. 11. Apice do abdomen, aspecto lateral. — Fig. 12. Apice do abdomen, aspecto distal. — Fig. 13. Processo póstero-superior do hipopigio. — Fig. 14. Clasper, aspecto interno. — Fig. 15. Apice do clasper, aspecto externo. — Fig. 16. Aedeagus, aspecto dorsal. — Fig. 17. Aedeagus, vista ventral. — (Wygodzinsky del.)

Subfamília Emesinae

Emesa mourei Wygodzinsky, 1946

Localidade: Tingo Maria, Perú, Rio Huallaga, 700 m, 11-1947, col. Weyrauch (1 ♀, col. Weyrauch).

Esta espécie foi descrita do sul do Brasil. O exemplar examinado corresponde perfeitamente aos exemplares originais.

Gardena marcia McAtee & Malloch, 1925

Localidade: St. Augustine, Trinidad, 20/30-4-1929, Darlington (1 ♂, Mus. Comp. Zool., Harvard).

Ghilianella approximata McAtee & Malloch, 1925

Localidade: Chaquimayo, Perú, N. Holmgren (1 ♀, Mus. Stockholm).

Ghilianella assa-nutrix Bergroth, 1906

Localidade: Coppename, Fallanatra, Suriname, 1900, Dr. H. v. Cappele col. (1 ♀, Mus. Leiden).

Ghilianella pachitea McAtee & Malloch, 1925

Localidade: Rio Uaupés, Taracua, Amazonas, Brasil, 23-3-19??, Roman col. (1 ♂, Mus. Stockholm).

Subfamília Harpactorinae

Acanthischium maculatum Amyot & Serville, 1843

Localidade: Rio Autaz, Amazonas, Brasil, Roman col. (2 ♀ ♀, Mus. Stockholm).

Os dois exemplares pertencem às variedades *flavipenne* Stal, 1872 e *dimidiatum* Stal, 1859. Temos visto algum material desta espécie, mas ainda não chegamos a uma conclusão definitiva sobre o valor taxonômico destas formas de coloração.

Arilus gallus (Stal, 1872)

Localidades: Rio Trombetas, Pará, Brasil (2 ♀ ♀, Mus. Leiden); Itaituba, Rio Tapajós, Pará, Brasil (1 ♀, Mus. Leiden); São Paulo de Olivença, Amazonas, Brasil, 7-1925 (2 ♀ ♀, Mus. Leiden, 1 ♀, I.E.E.A., 1 ♀, col. autor); Iquitos, S. Roque, Perú (1 ♀, Mus. Leiden); Ecuador (1 ♀, Mus. Praga).

Erbessus grossus (Stal, 1863)

Localidades: Manaus, Amazonas, Brasil, 10-1945, W. Praetorius col., Frank Johnson Donor (1 ♀, A.M.N.H.); Rio Caiary-Uaupés, Amazonas, Brasil, 1906, H. Schmidt (1 ♂, A.M.N.H.).

O primeiro exemplar mencionado corresponde bem ao material anteriormente examinado (Wygodzinsky, 1947); o segundo é de cor muito clara, amarelada em vez de avermelhada, mas corresponde bem quanto aos seus outros caracteres.

Erbessus rufiventris Breddin, 1901

Localidades: Tukeit, Guiana Britânica, 19-7-1911 (1 ♂, A.M.N.H.); Rio Uatuma, Amazonas, Brasil, 1-1944, W. Praetorius col., Frank Johnson don. (1 ♂, A.M.N.H.).

O macho de Tukeit corresponde ao exemplar anteriormente examinado (Wygodzinsky, 1947); o exemplar do Rio Uatuma tem o 1.º e 2.º artigo das antenas inteiramente vermelho.

Notocyrtus camelus Stal, 1859

Localidade: Tukeit, Guiana Britânica, 19-7-1911 (1 ♀, A.M.N.H.).

Notocyrtus vesiculosus flavolineatus Stal,
1859

Localidade: Óbidos, Pará, Brasil, (1 ♂, Mus. Berna).

Subfamília Reduviinae

Leogorrus formicarius (Fabricius, 1803)

Localidades: Óbidos, Pará, Brasil, 8-1922 (1 ♀, Mus. Leiden); Manaus, Amazonas, Brasil, Roman col. (1 ♂, Mus. Stockholm); Guiana Francesa, Roches de Kouron (1 ♂, Mus. Leiden); Punta Gorda, Honduras Britânica, 1915, R. Vitalis (1 ♀, col. autor); La Ceiba, Honduras, 10-10-1916, F. J. Dyer col. (1 ♀, A.M.N.H., no. 19151-19201).

Reduvius personatus (L., 1758)

Localidade: Paramaribo, D. Bolten (1 ♀, Mus. Leiden).

Esta espécie é comum na Europa e na América do Norte, onde se encontra geralmente em habitações humanas. No presente achado se trata provavelmente de um exemplar acidentalmente introduzido pelo homem.

Subfamília Salyavatinae

Salyavata variegata Amyot & Serville, 1843

Localidades: Rio Autaz, Amazonas, Brasil, Roman col. (1 ♂, Mus. Stockholm); Bogotá, Colômbia, Lindig col. (1 ♀, col. autor).

Este macho, de 13.5 mm de comprimento, corresponde em todos seus caracteres essenciais às fêmeas que já tivemos em mão. Estudamos sua genitália, comparando-a com a de *Salyavata nigrofasciata* Costa Lima, que tivemos ensejo de descrever e figurar em trabalho anterior (Wygodzinsky, 1943).

O 8.º esternito é bem visível, de cor preta. O 9.º esternito (hipopígio) é muito parecido ao de *nigrofasciata* (figs. 11-13). Também os cláspes (figs. 14-15) se assemelham bastante aos de *nigrofasciata*, sendo apenas seu ápice mais alargado. O aedeagus, representado nas figuras 16 e 17, é muito característico, mormente quanto às zonas de esclerização do faloçoma e os 1+1 processos membranosos laterais subapicais.

Bibliografia.

- Champion, G. C., 1897-1901, Insecta. Rhynchota. Hemiptera-Heteroptera, vol. 2. In: Biologia Centrali-Americana. London, XVI-416 pgs., 22 pls.
- Wygodzinsky, P., 1943, Contribuição ao conhecimento do gênero *Salyavata* (Salyavatinae, Reduviidae, Hemiptera). — Bol. Mus. Nac., Rio de Janeiro, (n. s.), Zool. vol. 6, pp. 1-27, 19 fgs.
- 1947, Sobre um novo gênero de Harpactorinae do Brasil, com notas sobre os gêneros *Harpactor* Laporte e *Erbessus* Stal (Reduviidae, Hemiptera). — Rev. Ent., Rio de Janeiro, vol. 17 (3), pp. 401-417, 47 fgs., 7 pls.

Checklist of Neotropical Gyrinoidea (Col.)

By George Ochs, Dachau, Germany.

I have recently obtained a copy of Blackwelder's Checklist of the Coleopterous Insects of Mexico, Central America, the West Indies, and South America (U. S. National Museum Bull. 185). After critical examination of the Gyrinoidea section of this list (pages 80-82), I have drawn up a revised list. Besides a few corrections, supplementary references, and additional records, I have used an arrangement of genera and higher categories which seem to better their systematic and phylogenetic relationships.

I am very much indebted to Dr. Waldo H. Schmitt, Head Curator of the Department of Zoology of the U. S. National Museum, for having turned my attention to the Checklist, to Mr. L. L. Buchanan for bibliographic references, and to Dr. Blackwelder for suggesting the preparation of this revised list. I am obliged, moreover, to Prof. Hans Sachtleben of the Deutsches Entomologisches Institut for helpful assistance and to his secretary, Miss Doering, for a typewritten copy of the Checklist.

GYRINOIDEA.**Gyrinidae.****GYRINI INCAUDATI.****GYRININAE.**

Gyrinus Linn. 67-567 (nec Geoffr. 62-193, nec Müller 64-XVII).

Gyrinus Zaitz. 07-238 (Subg.)

Neogyrinus Hatch 25-458 (Subg.)

Oreogyrinus Ochs 35-129 (Subg.)

aequatorius Rég. 83-182.....Bolivia

argentinus Steinh. 69-251.....Argentina

bolivari Rég. 83-181

baeri Rég. 07-179.....Peru

bierigi Ochs 35-199.....Panama

chalybaeus Perty 30-15.....Brazil

derasus Sharp 77-118 Argentina

marginalis Lap. 35-108 Uruguay

chillensis Aubé 38-703.....Chile

Peru

coerulescens Ochs 35-129.....Brazil

violaceus Zimmerm. 20-232 Paraguay

Argentina

Uruguay

colombicus Rég. 83-180.....Colombia

Venezuela

continuus Rég. 07-176.....Ecuador

costaricensis Ochs 35-198.....Costa Rica

crassus Aubé 38-711.....Brazil

cubensis Rég. 83-151.....Cuba

Isla de Pinos

dimorphus Rég. 83-474.....México

gibbus Aubé 38-709.....Uruguay

apicalis Sharp 77-117 Argentina

Paraguay

Brazil

Peru

Bolivia

Colombia

Venezuela

Fr. Guiana

Costa Rica

gulanus Ochs 35-34.....Br. Guiana

impatiens Aubé 38-695.....Colombia

luederwaldti Zimmerm. 23-39.....Brazil

obtusis Say 34-447.....México

mexicanus Ochs 29-103

opalinus Rég. 83-184.....Brazil

ovatus Aubé 38-708.....Uruguay

Paraguay

Argentina

Brazil

Bolivia

Guatemala

México

parcus Say 34-448.....México
U. S. A.
peruvianus Rég. 07-174.....Peru
plicatus Rég. 83-183.....México
obtus Sharp 82-50
plicifer Lec. 52-209.....México
fusclpes Motsch. 59-173 U. S. A.
punctipennis Rég. 07-175.....Ecuador
bolivari Rég. 91-682
rugifer Rég. 83-179.....Cuba
Haiti
Puerto Rico
Jamaica
Dominica
Guadeloupe
suspiciosus Ochs 30-68.....México
turbinator Sharp 82-50.....Guatemala
guatemalensis Zimmerm. 17-162
violaceus Rég. 83-187.....Uruguay

ENHYDRINAE.

ENHYDRINI.

Andogyrus Ochs 24-236*Macrogyrus* Rég. 82-432

buqueti Aubé 38-658.....Colombia
irldescens Kirsch 65-43 Ecuador
colombicus Rég. 91-668.....Colombia
glaucus Rég. 82-435
depressus Brullé 38-51.....Bolivia
ellipticus Brullé 38-51.....Chile
gayi Sol. 49-293
leathesii Curt. 41-196
glaucus Aubé 38-657.....Ecuador
borrel Rég. 82-436
lojensis Rég. 91-668.....Ecuador
ab. planatus Rég. 91-668.....Ecuador
peruvianus Rég. 07-155.....Peru
sedilloti Rég. 82-436.....Colombia
seriatopunctatus Rég. 82-437.....Chile
ellipticus Sol. 49-292 Argentina

Enhydrus Lap. 34-110*Epinectes* Rég. 77-105

atratus Rég. 76-CCXV.....Panama
Colombia
ssp. crenatostratus Rég. 07-154.....
Colombia
sulcatus Wied. 21-119.....Brazil
tibialis Rég. 76-CCXV.....Brazil

DINEUTINI.

Dineutus M'Leay 25-30*Dineutes* of authors*Necticus* Lap. 34-109*Cyclinus* Kby. 37-78 (Subg.)*Dineutus* Hatch 25-447 (Subg.)

americanus Linn. 67-568.....Cuba
metallicus Aubé 38-781

Isla de Pinos
Puerto Rico
Jamaica
St. Thomas

St. John
Antigua
Guadeloupe
Andros (Bahamas)
carolinus Lec. 68-366.....Mexico ?
U. S. A.
ssp. mutchleri Ochs 24-3.....Bahamas
ciliatus Forsb. 21-312.....México
vittatus Germ. 24-32 U. S. A.
opacus Melsh. 46-29
inflatus Blackb. 95-28
discolor Aubé 38-784.....México
labratus Melsh. 46-29 U. S. A.
longimanus Ol. 95-11.....Haiti
excisus Forsb. 21-301
ssp. cubensis Ochs 26-192.....Cuba
ssp. jamaicensis Ochs 38-88.....Jamaica
ssp. portoricensis Ochs 24-5.Puerto Rico
productus Rob. 95-285.....México
U. S. A.
solitarius Aubé 38-780.....México
Guatemala
Honduras
Nicaragua
U. S. A. (Cal.)
sublineatus Chevr. 34-3.....México
integer Lec. 54-221 Guatemala
Br. Honduras
Nicaragua
U. S. A. (Ariz.)
truncatus Sharp 73-54.....Guatemala
Honduras
Nicaragua
Panama
Costa Rica
ssp. mexicanus Ochs 25-13....México

GYRINI CAUDATI.

ORECTOCHILINAE.

Gyretes Brullé 35-241

acutangulus Sharp 82-52.....México
Honduras
Costa Rica
Panama
Is. Perlas
angustatus Rég. 83-409.....Brazil
bidens Oliv. 95-13.....Fr. Guiana
aeneus Brullé 35-241
var. spitzlyi Rég. 87-246.....Surinam
bolivari Rég. 83-395.....Ecuador
boucardi Sharp 82-51.....México
Costa Rica
f. dimorphogynus Rég. 07-188..México
Guatemala
Br. Honduras
bruchii Ochs 29-73.....Argentina
Paraguay
Brazil
burmeisteri Ochs 29-84.....Brazil
cinctus Rég. 83-394
f. palliatus Ochs 29-84.....Brazil
f. togatus Ochs 29-85.....Brazil

- centralis Rég. 07-186.....Costa Rica
Panama
- cinctus Germ. 24-33.....Brazil
- convexior Ochs 34-143.....Brazil
- levis Rég. 07-186 Venezuela
- levis Zimmerm. 24-3
- cubensis Rég. 83-392.....Cuba
- darlingtoni Ochs 38-90.....Cuba
- ab. pygidialis Ochs 38-91.....Cuba
- dimorphus Ochs 34-142.....Brazil
- discus Erichs. 48-556.....Guiana
- speculiger Rég. 04-226 Brazil
- Venezuela
- distinguendus Rég. 07-186.....Grenada
- dorsalis Brullé 38-52.....Brazil
- Paraguay
- Argentina
- f. lugubris Ochs 29-90.....Brazil
- ssp. paraguensis Rég. 91-685.Paraguay
- Brazil
- dubius Ochs 29-85.....Brazil
- Argentina
- Paraguay
- ab. rufilabris Ochs 29-87.....Brazil
- fallaciosus Ochs 29-76.....Venezuela
- henoni Zimmerm. 24-3 Colombia
- funestus Ochs 34-138.....Paraguay
- geayi Rég. 04-226.....Guiana
- glabratus Rég. 81-70.....Brazil
- f. reticulatus Rég. 07-182.....Brazil
- globosus Ochs 29-130.....Brazil
- gradualis Rég. 07-184.....Brazil
- guatemalensis Rég. 83-399.....Guatemala
- levis Sharp 82-51 Panama
- Brit. Honduras
- México
- hastatus Fabr. 01-275.....Brazil
- quadrispinosus Rég. 91-685
- henoni Rég. 86-259.....?
- hoffmanni Ochs 34-147.....Brazil
- f. aemulus Ochs 34-148.....Brazil
- f. wenzeli Ochs 34-148.....Brazil
- inflatus Rég. 91-687.....Brazil
- Paraguay
- Bolivia
- jacobi Ochs 32-52.....Paraguay
- leionotus Aubé 38-753.....México
- levis Brullé 38-52.....Argentina
- Brazil
- limbalis Rég. 07-188.....Ecuador
- lobatus Ochs 29-88.....Brazil
- lojensis Rég. 91-686.....Ecuador
- lucidus Ochs 29-128.....Brazil
- luctuosus Ochs 34-140.....Paraguay
- f. nitidus Ochs 34-140.....Paraguay
- luederwaldti Ochs 29-71.....Brazil
- melanarius Aubé 38-748.....Brazil
- meridionalis Rég. 83-408.....Uruguay
- f. uruguensis Rég. 07-169.....Uruguay
- mexicanus Rég. 83-405.....México
- Guatemala
- minor Rég. 83-407.....Guatemala
- leionotus Sharp 82-51 México
- f. laevipennis Ochs 29-4.....México
- morio Aubé 38-756.....Guadeloupe
- Antigua
- multisetosus Ochs 29-130.....Brazil
- nevermanni Ochs 35-200.....Costa Rica
- nigrilabris Ochs 39-92.....Haiti
- nitidulus Lab. 53-53.....Guiana
- Brazil
- Paraguay
- f. alutaceus Ochs 29-89.....Paraguay
- oblongus Rég. 83-396.....Brazil
- Paraguay
- ochsi Brinck 44-19.....Colombia
- parvulus Lab. 53-59.....Fr. Guiana
- pescheti Ochs 29-91.....Fr. Guiana
- piptzi Rég. 91-685.....Brazil
- Paraguay
- plagiatus Ochs 34-147.....Brazil
- plaumanni Ochs 34-145.....Brazil
- Paraguay
- proximus Sharp 82-52.....Costa Rica
- pygmaeus Rég. 81-70.....Brazil
- Paraguay
- Argentina
- Guiana
- Chile ?
- sallei Lab. 53-51.....Venezuela
- scaphidiformis Rég. 81-69.....Venezuela
- Colombia
- Bolivia
- Brazil
- sculpturatus Ochs 34-144.....Argentina
- levis Ochs 29-70
- sericeus Lab. 53-48.....Venezuela
- javanus Lac. 54-442 Colombia
- s. bifeneistratus Rég. 86-258.Venezuela
- Colombia
- Ecuador
- sexualis Rég. 83-388.....Fr. Guiana
- Brazil
- Peru
- Paraguay
- Argentina
- sharpi Rég. 83-391.....Brazil
- simulator Ochs 29-68.....Brazil
- sinuatus Lec. 52-210.....U. S. A.
- compressus Lec. 63-23 México ?
- strandii Ochs 35-201.....Paraguay
- subcylindricus Rg. 91-688.....Brazil
- Paraguay
- sunthelmi Ochs 32-51.....Argentina
- suturalis Rég. 83-386.....Brazil
- Peru
- Ecuador
- torrenticola Ochs 34-149.....Brazil
- tumidus Rég. 83-396.....Brazil
- venezuelensis Rég. 83-403.....Venezuela
- villosomarginatus Ochs 24-8.....Brazil
- vulneratus Aubé 38-752.....Haiti
- f. laevicollis Ochs 38-89.....Haiti
- zimmermanni Ochs 29-131.....Brazil
- Paraguay

Noticias Diversas.

"The Wasmann Collector", formerly the journal of the Wasmann Biological Society, has announced that it is henceforth to be published jointly by Loyola University, St. Louis, and the University of San Francisco, California. Wasmann Society membership is no longer required of contributors, and manuscripts on original biological research are solicited for publication in accordance with the policy of establishing the journal on a quarterly basis. The managing Editor is Edward L. Kessel on the University of San Francisco. (Ent. News, Abril 1948, p. 103).

Dr. Charles D. Michener, formerly Associate Curator at the American Museum of Natural History, New York, has been appointed as Associate Professor of Entomology at the University of Kansas, Lawrence, Kansas. (Ibid. p. 174.)

Duas Novas Espécies de *Bibionellus* Edwards, 1935 (Diptera, Bibionidae).

Por J. Lane (São Paulo) e O. P. Forattini (São Paulo).

(Com 4 figuras)

Iniciando o estudo da nossa coleção e da existente no Departamento de Zoologia do Estado de S. Paulo, encontramos duas espécies muito interessantes que pertencem ao gênero *Bibionellus*. Tal gênero é, até agora, conhecido apenas pela espécie tipo *tibialis* Edw. 1935 da Bolívia. As nossas espécies aumentam consideravelmente a distribuição zoogeográfica deste gênero.

Bibionellus barrettoi, n. sp.

Comprimento do corpo 3 a 3,4 mm; asa 3,2 a 3,6 mm.

Macho. — Cabeça: Enegrecida-brilhante e revestida de esparsa pilosidade escura. Tubérculo ocelar enegrecido e protuberante, sendo que os três ocelos são sub-iguais. Partes bucais reduzidas. Palpo com os três primeiros segmentos castanhos, o quarto enegrecido, primeiro segmento curto, segundo e terceiro com quase o mesmo comprimento, quarto o mais longo; comprimento total do palpo maior que o da antena; os segmentos esparsamente revestidos de pilosidade escura. Antena castanho-amarelada, toro globoso, curto; o flagelo formado por seis segmentos e revestido de pilosidade escura. Olhos grandes e glabros, sub-divididos, a porção inferior menor, a anterior nitidamente separada da superior, olhos unidos acima das antenas até alcançar os ocelos.

Tórax: Mesonoto castanho-claro, liso e brilhante; cerdas acrosticais ausentes ou então unidas às dorsocentraes, estas em dupla fileira de elementos pálidos; lateralmente uma fileira de cerdas mais grossas, além de outras esparsas e espalhadas pela margem. Escutelo da cor do mesonoto. Postnoto escuro. Pleuras enegrecidas-brilhantes com tonalidade castanha, glabras; meron com o ápice ao nível da coxa mediana.

Pernas enegrecidas-brilhantes com tonalidade castanha, os trocânteres um pouco mais claros. Coxas revestidas de pilosidade pálida. Fêmur anterior dilatado, revestido de fileiras de pilosidade escura. Fêmur mediano mais curto que o anterior, delgado na base, engrossado nos três quartos apicais. Fêmur posterior com quase duas vezes o comprimento do anterior, delgado na metade basal e fortemente entumescido na apical, revestido de pilosidade

escura, longa e esparsa. Tibia anterior com dois terços do comprimento do fêmur correspondente, revestida de pilosidade escura, tubérculo mediano distinto; termina em dois esporões, dos quais o interno é pequeno e reduzido e o externo grande e piloso. Tibia mediana com o comprimento do fêmur correspondente, revestida de pilosidade enegrecida. Tibia posterior pouco mais curta que o fêmur correspondente, pouco mais que o terço basal delgado, o restante fortemente entumescido; revestido de pilosidade enegrecida. Tarsos escuros. Pulvilos grandes, o empódio pulviliforme e quase tão desenvolvido como os pulvilos; garras tarsais simples e bem desenvolvidas.

Asa levemente escurecida, principalmente na porção anterior. Primeira nervura e segunda na forquilha, espaçadamente cerdosas; as outras nervuras aparentemente nuas. Balancim com a haste mais clara na base, o restante castanho-escuro.

Abdomen revestido de pilosidade escura, os tergitos enegrecidos, brilhantes, os esternitos escuros e opacos.

Genitália (figs. 1 e 2): Basistilo com os lobos fundidos e de formato trapezoidal; pouco mais longos que largos e esparsamente cerdosos. Dististilo pouco mais curto que o basistilo, engrossado, o ápice terminado em um bico fortemente esclerotizado e adunco; revestido de esparsa cerdosidade, salvo na porção interno-distal onde é densa. Mesosoma apresentando em conjunto formato sub-triangular, o ápice truncado; duas alças laterais em forma de gancho com a concavidade dirigida para fora e para cima; ápice densamente revestido de espiculosidade enegrecida, as alças revestidas dessa mesma espiculosidade; resto do mesosoma inerte e fracamente esclerotizado; existe no meio uma estrutura alongada que possui longas cerdas distais (vide fig. 2). Nono tergito com os lobos fundidos, côncavo no meio, pouco saliente nos lados; esparsamente revestido de cerdas e homogêneamente espiculoso.

Fêmea. — Difere do macho pelos seguintes característicos: Cabeça castanha, fronte e occipício revestidos de pilosidade clara. Tubérculo ocelar enegrecido, protuberante, com os três ocelos de igual tamanho. Antena com o escapo de menor diâmetro que o toro, este grande e globoso; flagelo como no macho. Olhos afastados, reniformes, glabros.

Pernas com a coxa anterior amarelada, a mediana e a posterior castanho-escuras na base e amareladas para o ápice. Fêmur anterior castanho-claro. Tibia castanho-escura. Fêmur mediano

da cor do anterior, o posterior mais claro no terço basal, fortemente entumescido e amarelado nos dois terços distais, a tibia correspondente do comprimento do fêmur, enegrecida e alargada no terço apical.

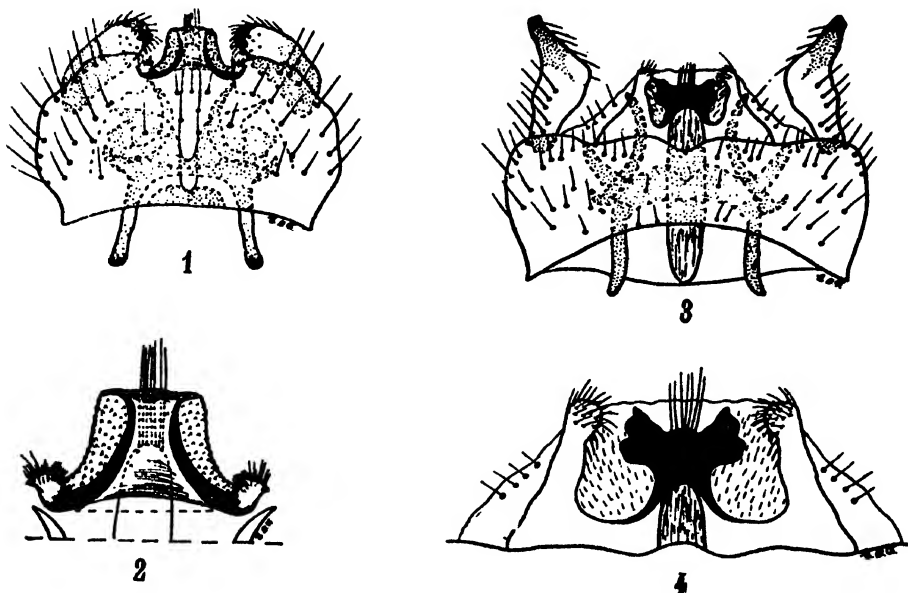


Fig. 1. *Biblonellus barrettol* n. sp., genitália do macho. — Fig. 2. Idem, mesosoma. — Fig. 3. *Biblonellus paulistensis* n. sp., genitália do macho. — Fig. 4. Idem, mesosoma.

Holótipo macho; alótipo fêmea; parátipos dois machos, três fêmeas e quatro casais capturados em cópula. Holótipo, alótipo e oito parátipos registrados sob os ns. 7566 a 7576 da coleção de entomologia do Departamento de Parasitologia da Faculdade de Higiene de S. Paulo. Os demais parátipos enviados ao Departamento de Zoologia do Estado de S. Paulo.

Localidade tipo: Brasil, Estado de Goiás, Corumbá, XI.1945 (M. P. Barretto col.) e Estado de S. Paulo, Pitangueiras, X.1947 (F. Lane col.).

O nome desta espécie é dado em homenagem a um dos seus colecionadores, o Dr. M. P. Barretto da Faculdade de Medicina da Universidade de S. Paulo.

Biblonellus paulistensis, n. sp.

Comprimento do corpo 3 a 3,8 mm; asa 3 a 3,6 mm.

M a c h o. — Cabeça: Enegrecida-brilhante, esparsamente revestida de pilosidade. Tubérculo ocelar saliente, os três ocelos

sub-iguais. Partes bucais reduzidas. Palpo castanho e revestido de longa pilosidade, o quarto segmento enegrecido e mais longo que os demais. Antena muito curta, escapo reduzido; toro pouco diferenciado dos segmentos flagelares, castanho-claro e com orla de cerdas castanho-escuras; flagelo com seis segmentos muito unidos, sub-iguais, o último de ápice rombo, castanho-claros e revestidos de esparsa pilosidade castanho-escura. Olhos grandes e glabros, unidos na linha mediana desde pouco acima das antenas até o tubérculo ocelar; sub-divididos em duas porções; a inferior pequena sub-triangular, com omatídios reduzidos; a superior maior, circular, os omatídios grandes.

Tórax: Mesonoto castanho-amarelado, liso, brilhante, as cerdas dorsocentrals amareladas e em duas fileiras; lateralmente revestido de esparsa pilosidade esbranquiçada. Escutelo e postnoto castanho-escuros. Pleuras enegrecidas, brilhantes e glabras salvo pequena porção da esternopleura que é castanha. Meron na mesma posição que em *B. barrettoi*.

Pernas: Coxas esparsamente revestidas de longa pilosidade esbranquiçada. Fêmur anterior entumescido, revestido de fileiras de pêlos escuros. Fêmur mediano mais curto que o anterior, engrossado nos dois terços distais. Fêmur posterior pouco menos de duas vezes o comprimento do anterior, delgado na metade basal e fortemente entumescido na apical, esparsamente revestido de pilosidade escura. Tibia anterior cerca de dois terços do comprimento do fêmur correspondente, esparsamente revestida de pilosidade escura; tubérculo mediano desenvolvido; ápice com dois esporões, sendo o interno pequeno e o externo pouco menos da metade do comprimento dessa estrutura. Tibia mediana do comprimento do fêmur correspondente, revestida de pilosidade enegrecida. Tibia posterior pouco mais curta que o fêmur correspondente, delgada em pouco mais do que o terço basal, o restante fortemente dilatado e revestido de pilosidade enegrecida. Tarsos enegrecidos e revestidos de pêlos escuros. Pulvilos grandes; empódio pulviliforme e quase tão desenvolvido como os pulvilos; garras tarsais simples e bem desenvolvidas.

Asa e balancim semelhantes a *B. barrettoi*.

Abdomen enegrecido. Tergitos esparsamente pilosos. Esteronitos revestidos de pilosidade mais abundante que os tergitos.

Genitália (figs. 3 e 4): Basistilo com os lobos fundidos, retangulares, mais largos que longos, esparsamente revestidos de cerdas. Dististilo aproximadamente do comprimento do basis-

tilo, estreito e terminado por uma ponta truncada e fortemente esclerotizada; na sua metade inferior com longas cerdas; súpero-internamente com denso grupo de cerdas delgadas e implantadas em tubérculos distintos. Mesosoma trapezoidal, o ápice escavado; internamente uma porção escura, fortemente esclerotizada, quadrangular, o ápice com cerdas longas, as paredes internas revestidas de densa e curta pilosidade que é longa nas bordas superiores, o restante inerme e fracamente esclerotizado.

Fêmea. — Difere do macho pelos seguintes característicos: Cabeça de coloração castanho-amarelada, revestida de esparsa pilosidade esbranquiçada. Tubérculo ocelar negro-brilhante, com três ocelos iguais e protuberantes. Antena castanho-clara. Olhos pequenos, globosos, enegrecidos, glabros e separados.

Tórax: Mesonoto castanho-amarelado. Escutelo da cor do mesonoto. Postnoto castanho-escuro. Pleuras castanho-amareladas e glabras.

Pernas com as coxas e fêmures amarelados. Tíbias e tarsos castanho-escuros. Fêmur anterior entumescido em toda a sua extensão. Fêmur mediano mais curto e menos dilatado. Fêmur posterior com o terço basal delgado e os dois terços distais entumescidos. Tibia anterior como no macho. Tíbias mediana e posterior delgadas em todo o seu comprimento e não claviformes como nos machos.

Holótipo macho; alótipo fêmea; parátipos três machos e três fêmeas. Holótipo, alótipo e dois parátipos registrados sob os ns. 7577 a 7580 da coleção de entomologia do Departamento de Parasitologia da Faculdade de Higiene de S. Paulo. Os demais parátipos enviados ao Departamento de Zoologia do Estado de S. Paulo.

Localidade tipo: Brasil, Estado de S. Paulo, Pitangueiras, X.1947 (F. Lane col.) e 1 macho de Porto Cabral, X.1941 (Travassos F., Carrera e Dente col.).

Damos a seguir uma chave para as espécies deste gênero. Incluímos *B. tibialis* Edwards, 1935, pela descrição original, pois não possuímos exemplares do mesmo.

Chave.

- | | |
|---|-------------------------|
| 1. Machos | 2. |
| — Fêmeas | 3. |
| — Pleuras enegrecidas; mesonoto castanho-claro | 4. |
| — Pleuras castanho-escuras; mesonoto avermelhado; escutelo enegrecido | |
| | <i>tibialis</i> Edwards |

3. Escutelo castanho-laro; genitália com o ápice do mesosoma cônico e saliente *barrettoi* n. sp.
- Escutelo enegrecido; genitália com o ápice do mesosoma escavado no meio *paulistensis* n. sp.
4. Postnoto enegrecido 5.
- Postnoto e pernas amarelados *tibialis* Edwards
5. Pleuras enegrecidas *barrettoi* n. sp.
- Pleuras castanho-claras *paulistensis* n. sp.

Resumo.

Os autores descrevem duas espécies brasileiras de *Bibionellus* Edwards, 1935. Este gênero, até o presente, constava da espécie tipo (*tibialis*) proveniente da Bolívia.

Summary.

The authors describe two Brazilian species of *Bibionellus* Edwards, 1935. This genus, up to the present, had only the type species (*tibialis*) from Bolivia.

On Some New Neotropical Scolytidae (Col.)
(88th Contribution to the taxonomy and morphology of
Scolytoidea)

By K. E. Schedl, Lienz, Austria.

Examining my collection of Neotropical Scolytidae, I found several specimens I had compared some time ago with material determined by the late Mr. Eggers and which apparently belong to undescribed species. In the present paper I describe a first lot of four new species of the genus *Micracis* Lec. and two others of the genus *Xyleborus* Eichh.

Micracis grandis, n. sp.

Reddish brown, 2.9 mm long, a little more than three times as long as broad. Rather closely allied to *M. suturalis* Lec. but somewhat more slender, the sculpture finer, the elytral declivity more abruptly convex and the apical acumination shorter. Front concealed by the very long hairs of the antennal scape. Pronotum somewhat longer than wide (29:25), sides subparallel on more than the basal half, apex broadly rounded, summit before the middle (distinctly more so than in *M. suturalis* Lec.), anterior area moderately convex, with remotely placed small asperities which are more crowded around the summit, interspaces subopaque and punctulate as in *M. suturalis* Lec., posterior area more shining than in *suturalis* and the punctuation distinctly finer. Elytra a little more slender, the striae punctures much finer in the whole, especially more so towards and on the elytral declivity, the latter more abruptly convex, rugosely and densely punctured as usual, but not so coarse as in *suturalis*; the short yellow pubescence somewhat more distinct, especially on the declivity.

Holotype from Mexico, Chiapas, San José. In my collection.

Micracis punctatorugosus, n. sp.

Female. — Reddish brown, 2.4 mm long, a little more than three times as long as wide (71:23). Easily separated from allied species by the coarse punctuation of the pronotum and the elytra. Front as far as visible shining, subconvex, with a brush of yellow hairs on the outer edges of the mandibles and then continued upwards on the front well within the inner margin of eyes. Antennal scape with extremely long hairs. Pronotum longer

than wide (26:22), sides subparallel to beyond the middle, then feebly constricted and broadly rounded in front, apical margin with numerous rather small asperities, summit distinctly before the middle, followed by a slight transverse impression, anterior area rather uniformly covered with moderately large asperities, posterior area subshining, rather regularly and coarsely punctured, pubescence short and inconspicuous. Scutellum small, shining. Elytra but feebly wider and 1.7 times as long as the pronotum, sides subparallel up to the posterior fourth, then rounded to the triangular but feebly acuminate apex; disc with rows of rather coarse and deep punctures, the interspaces narrow, appearing rather rough, the declivity rather shining, commencing on the apical third, steeply convex, the stria punctures becoming smaller towards and on the declivity, the second and fourth interstices narrower, the alternate ones each with a row of small but very distinct granules.

Holotype from Mexico, Michacan. In my collection.

Micracis robustus, n. sp.

Reddish brown, 1.87 mm long, 2.75 times as long as wide, apparently a female. Much stouter than *M. mexicanus* m., with a different shape of pronotum and another type of sculpture. Front plano-convex, slightly depressed between the eyes, subopaque, with a fringe of short yellow hairs directed downwards below. Pronotum a little longer than wide (21:19.5), widest at base, sides subparallel on the posterior two fifths, thence distinctly constricted, apical margin broadly rounded and armed with several small subequal asperities, summit short before the middle, shallowly depressed behind, anterior area subopaque, minutely punctulate and with scattered small asperities which become much smaller and more crowded around the summit, posterior area subshining, with fine shallow punctures, pubescence short and inconspicuous. Scutellum of moderate size, punctulate. Elytra a little wider (20:19.5) and 1.57 times as long as the pronotum, widest at the commencement of the declivity on the posterior third, the latter steeply convex, the apical margin drawn out to a triangular shape; disc subshining, of a silky appearance, rugosely punctured and wrinkled so that the striae are not easily recognised, the roughness of the sculpture somewhat increased towards the declivity, the stria punctures of the declivital face deeper and more distinct but not larger, the interstices each with

a row of small pointed granules, pubescence short and inconspicuous on the disc, much longer and somewhat scale-like widened on the declivity.

Holotype from Mexico, Esmeralda, Chiapas. In my collection.

Micracis pygmaeus, n. sp.

Reddish brown, 1.4 mm long, 2.52 times as long as wide. Compared with *M. robustus* n. sp. this species is much smaller and stouter but shows a similar sculpture. It seems to be a female, although it cannot be associated with *robustus*. Front plano-convex, with a slight depression just above the epistomal margin, subshining, minutely punctulate, with a fringe of very short hairs just within the inner margin of eyes. Antennal scape triangular and with some long hairs, club with a strongly curved suture on the outer face. Pronotum but very feebly wider than long, widest just before the base, sides subparallel on the posterior two fifths, then feebly constricted, apical margin rather narrowly rounded and with four small subequal teeth, summit just before the middle, with a similar sculpture as in *robustus* n. sp., posterior depression merely indicated, posterior area subshining, minutely punctulate and with very fine indistinct punctures, pubescence short and inconspicuous. Scutellum of moderate size, subshining. Elytra only a little wider and 1.85 times as long as the pronotum, of the same cylindrical shape, with the same acuminate apex and the same subshining rugosely wrinkled disc as in *robustus* n. sp., but the declivity commencing farther in front, immediately behind the middle, the granules on the declivital face comparatively smaller, the scale-like hairs in the interspaces more densely placed and longer, and with distinct short inclined hairs arising from the rather concealed striae punctures.

Holotype from Mexico, Chiapas. In my collection.

A second specimen is somewhat larger and distinctly more elongate, but has the front entirely concealed by the pronotum, so that it is impossible to decide if it represents the other sex.

Xyleborus inconueniens, n. sp.

Female. — Head and pronotum deep reddish brown, elytra decidedly darker, 2.3 mm long, 2.8 times as long as wide. At the first sight very much like *Xyleborus torquatus* Eichh. but with a very different shape of the elytral declivity and the apical

border. Front plano-convex, with a silky shine, minutely punctulate, with scattered deep punctures, pubescence sparse, somewhat denser along the epistomal margin. Pronotum about as long as wide, widest at the beginning of the posterior third, sides subparallel, feebly arcuate on more than the basal third, apex moderately broadly rounded, summit distinctly before the middle and moderately high, anterior area covered with low asperities, posterior area polished, shining, with scattered very fine punctures, pubescence sparse and inconspicuous. Scutellum triangular and shining. Elytra at base as wide and 1.76 times as long as the pronotum, sides straight and feebly convergent up to the posterior third, apex somewhat triangularly rounded; disc shining, with fairly regular rows of medium-sized punctures, the striae hardly impressed except the first one which is distinctly so, interstices each with a row of finer and more remotely placed punctures; declivity commencing short behind the middle, very obliquely convex, the first three striae on each side distinctly impressed but the punctures themselves less distinct than on the disc, interstices 1-3 with a row of fine granule-like punctures giving the whole declivity a rather rough appearance, the first and third interstices additionally with three to four larger tubercles, the pubescence inconspicuous and sparse on the disc, longer and more distinct on the declivity where the hairs arise from the interspacial granules and tubercles, on the declivital convexity the striae punctures also with hairs but these are very short and inclined.

Holotype from Costa Rica, Hamburgfarm, Ebene Limon, Reventazon, 28.VI.1934, "fliegend bei *Virola warburgii*", F. Nervermann leg. In my collection.

Xyleborus titubanter, n. sp.

Female. — Nearly black, 3.3 mm long, 3.1 times as long as wide. Allied to *Xyleborus linearis* Egg. but much larger and with another type of elytral declivity. Front plano-convex, subshining, minutely punctulate and with scattered medium-sized punctures, pubescence very sparse but long. Pronotum 1.6 times as long as wide, postero-lateral angles broadly rounded, sides subparallel on basal two thirds, apex moderately broadly rounded, summit rather high, short before the middle, anterior area densely covered with comparatively small asperities which become still smaller and extend farther behind on the sides, posterior area shining, with rather fine scattered punctures and minutely reticulate

along the median line when examined under high magnification; pubescence restricted to the sides and the apex, sparse and long. Scutellum large, shining. Elytra brightly shining, about as wide and 1.66 times as long as the pronotum, cylindrical and parallel-sided up to the posterior fourth, apex moderately broadly rounded; disc with regular rows of medium-sized punctures, distance between the punctures as great as their diameter, striae hardly impressed, interstices wide with scattered very small and irregularly placed punctures; declivity commencing with the beginning of the posterior third, interstices 1-3 each with a row of rather closely placed tubercles.

Holotype from Mexico. In my collection.

The Project of an International Journal of Myrmecology.

From a letter received from Prof. Merle W. Wing (Box 5215, State College Station, Raleigh, N. C.) we quote the following:

"October 11, 1948. — Dear Father Borgmeier, Many thanks for your letter of September 17. I value your remarks on the proposal included in my short note, as you have had a long experience as an editor and consequently appreciate the problems of founding and running a journal far better than I do.

I am perhaps too much of an optimist in thinking that it will be possible to get such a journal started, but I do not propose to give up the idea this early in the game. I know that a number of people in this country are interested in the idea of such a journal, and many workers in other countries would no doubt also be interested.

As for a World institute for myrmecology, it may be a long time in coming. I do not think the Main Valley is the place for it either, but in the note I merely quoted what Dr. Gösswald had stated, with the idea that the institute would be brought to the attention of the reader more than the tentative location of it as suggested by Dr. Gösswald.

During the next year I expect that several notes will be written by various writers in support of the idea of founding such a journal. After these notes have been written and enough time has elapsed for the interested readers to make their thoughts known, then it will be possible to appraise the feeling of the specialists towards the idea. There is, of course, a long hard road from approval on the part of the specialists to the stage of a going journal. Time only will tell what success will be had in this project.

It would seem to me that you could render a great service by answering the first published note that comes to your attention on the proposed journal. You could point out the pitfalls and difficulties in such a project and thereby offer realistic help to the group.

With the very best of personal regards and all good wishes for your work, I am

Most sincerely yours,

Merle W. Wing.

Acutifrons chimango, Nova Species Mallophagorum.

Von Wolfdietrich Eichler, Aschersleben.

(Mit 1 Figur)

Im II. Band der "Papéis Avulsos do Departamento de Zoologia" der Secretaria da Agricultura (S. Paulo, Brasil) hat L. R. Guimarães 1942 in seiner Arbeit "Novos gêneros de Malófagos parasitas de Falconiformes" (pp. 235-247) eine neue Degeerielliden-Gattung *Acutifrons* errichtet. Zur Kennart wählte er die ebendort beschriebene *A. vieirai* von *Hypomorphus urubitinga urubitinga* Gmelin. Weitere Arten dieser Gattung kennt er nicht, dagegen berichtet er "dieselbe Art" auch noch von *Rupornis magnirostris magniplumis* Bertoni und von *Milvago chimachima chimachima* Vieillot. Ein weiteres Maennchen vom zuletzt genannten Wirt veranlasst Guimarães drei Jahre spaeter (in seinen Bericht "Sobre alguns ectoparasitos de Aves e Mamíferos do Litoral Paranaense", erschienen auf S. 179-190 des IV. Bandes der Arquivos do Museu Paranaense) zu der Aeusserung, moeglicherweise handle es sich bei den Parasiten von diesem Wirt um eine eigene Subspezies. Nun liegt mir aus dem Hamburger Zoologischen Museum ein Praeparat mit 2 *Acutifrons*-Maennchen vor, die am 20.V.1917 von Kapitaen R. Paessler bei *Milvago chimango* (ssp.) gesammelt worden waren. Beim Vergleich mit den Abbildungen, die Guimarães von der Kennart gibt, fallen mir einige Unterschiede auf, weshalb ich die Exemplare von *Milvago chimango* fuer eine neue Art halte und mit dem Namen *Acutifrons chimango* nov. spec. belege (Holotype: Praeparat WEC—Nr. 1255a).

Meine neue Art hat zunaechst einmal einen relativ laengeren Vorderkopf, als ich dies nach Guimarães' Zeichnungen fuer dessen Kennart annehmen muss; daher liegt die Verbindungslinie ihrer Trabekelspitzen in der hinteren Kopfhälfte. Ferner zeigt ihr Clypeus parabolisch gerundete Kopfseiten (vgl. Abb.); wie weit Guimarães' Zeichnungen in dieser Hinsicht vergleichbar sind, vermag ich allerdings nicht zu beurteilen, da dessen Abbildungen 3 und 4 des maennlichen Kopfes nicht voellig miteinander uebereinstimmen. Ein deutlicher Unterschied scheint vor allem in der Chaetotaxie der Clypealregion zu bestehen (vgl. Abb.). Ferner sind bei *A. chimango* nov. spec. die Schlaefen mehr gerundet (als bei *A. vieirai* Gui.), und der Pterothorax tritt stark gefluegelt hervor.

Deutliche Unterschiede ergeben sich auch in den Massen in

Millimetern meiner beiden Maennchen Praeparat WEC—Nr. 1255 (gegenueber den von Guimarães auf S. 240 mitgeteilten Massen seines allotypischen Maennchens von *A. vieirai*): Kopf 0,51-0,52 (0,60) lang zu 0,48-0,49 (0,55) breit, Prothorax ca. 0,17-0,13 (0,17) zu 0,26-0,26 (0,31), Pterothorax ca. 0,16-0,17 (0,14) zu 0,36-0,38 (0,42), Gesamtlänge 1,34-1,36 (1,54), Breite (des Abdomens) 0,53-0,61 (0,74). *Acutifrons chimango* nov. spec. ist also erheblich kleiner als *A. vieirai*, dagegen ist ihr Kopfindex mit 94,4-94,5% (gegen nur 90,7%) hoeher.

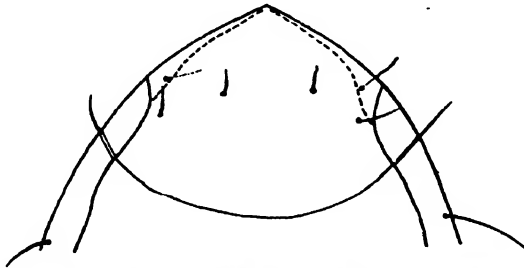


Fig. 1. *Acutifrons chimango* n. sp., Vorderkopf des Maennchens, Holotype. (Praeparat WEC Nr. 1255a).

Dass man diese Unterschiede nur subspezifisch werten koenne, moechte ich bezweifeln. Solange die beiden Formen nicht direkt miteinander verglichen werden koennen, erscheint mir — auch in Anbetracht der Wirte — spezifische Trennung angebracht.

Dass *Acutifrons* eine wohlbegruendete eigene Gattung darstelle, kann gewiss keinem Zweifel unterliegen. Die pyramidenartige Zuspitzung des Clypeus und die Aufloesung des limbus zygomaticus berechtigen diese Sonderstellung zur Genuege; unterscheidet doch vor allem jenes Merkmal die Gattung von allen anderen Mallophagen. Erstaunlich finde ich jedoch Guimarães' Hinweis auf eine Verwandtschaftsbeziehung zu *Upupicola* und *Cuculicola*. Wenn ich diese auch nicht leugnen moechte, so halte ich doch die Beziehung zu *Degeeriella* und *Kélerinirmus* fuer enger und ueberdies natuerlicher. Dass der zugespitzte Clypeus die Gattung von allen anderen Mallophagen unterscheidet, ist kein ueberzeugendes Gegenargument: Luxurationserscheinungen der Clypealregion finden wir in den verschiedensten Mallophagen-gruppen, und auch die vielfach mallophagenkonvergenten Triungulinenlarven besitzen solche Gestalten. Der Bau des maennlichen Genitale ist bei *Acutifrons* durchaus degeeriellid, und Formen wie z. B. *Degeeriella splendida* Klg. (1899b in *New Mallophaga* III) von *Polyborus cheriway audubonii* Cass. scheinen mir durchaus

dafuer geeignet, als ein Verbindungsglied zwischen *Acutifrons* und *Degeeriella* s. str. aufgefasst zu werden. Dass gerade *D. splendida* vom Kern der Gattung *Degeeriella* "erheblich abweiche" (und vielleicht mehr zu den *Kélerinirmus* hinneige), habe ich schon fruher betont (naemlich 1934h im Zoologischen Anzeiger, Bd. 142, S. 92-93, in meiner Arbeit "Mallophagen-Synopsis. X. Genus *Degeeriella*"). Beachtlich ist die geographische Herkunft: *D. splendida* stammt aus Kalifornien, die beiden *Acutifrons*-Arten aus Suedamerika. Ob hieraus mallophagengeographische Beziehungen abgeleitet werden duerfen, erscheint mir allerdings zumindest fraglich: die wirtlichen Beziehungen sind ebenso bemerkenswert, indem ja *Milvago* wie *Polyborus* zu den Polyborinae (also den Falconidae) gezaehlt wird, *Rupornis* dagegen mit *Hypomorphus* zu den Buteoninae (vgl. J. L. P e t e r s, "Check-List of birds of the world", vol. I, 1931, sowie Wd. E i c h l e r, 1946, "Gliederung der rezenten Aves", Sonderbeilage der Acta Mallophagologica).

Cartas recibidas.

Dr. G. B. Fairchild (Gorgas Memorial Laboratory, Ancon, Canal Zone): "The Revista is one of the very best entomological periodicals in the world at the present time. I have propagandized for it, and I think successfully, and I know it is becoming increasingly and favorably known among American Entomologists".

Prof. Dr. J. Douglas Hood (Cornell University, Ithaca, N. Y.): "The journal which you founded and conducted for so many years at great personal sacrifice deserves every possible encouragement".

Dr. R. L. Usinger (Agricultural Experiment Station, Davis, California): "I think that your Journal is one of the finest entomological journals published in the world. I like the style of papers, and the Neotropical bibliography is particularly valuable".

Prof. Ch. P. Alexander (State University, Amherst, Mass.): "I certainly do appreciate more than I can well express your kindness in publishing my various reports on the Tropical American Tipulidae. As I have said before, I do not think there is any finer entomological journal than the Revista, and I know that this high opinion of the publication is shared by most other entomologists".

Dr. E. Lindner (Stuttgart): "Vor allem moechte ich Sie herzlichst zu Ihrem Dr. h. c. beglueckwuenschen. Wenn irgend jemand, so kommt Ihnen diese hohe Auszeichnung zu, — fuer ein Leben, das der Wissenschaft diene und hoffentlich noch lange so erfolgreich dienen wird wie bisher. Durch Herrn Kollegen P. Schmitz liessen Sie mir den letzten Band Ihrer schoenen "Revista" uebermitteln. Ich habe mich darueber sehr gefreut und danke Ihnen herzlichst dafuer. Es ist sehr erfreulich, dass diese schoene Zeitschrift alle Gefahren der letzten Jahre erfolgreich bestanden hat und nach wie vor ein wertvolles Publikationsorgan fuer unseren Wissenschaftszweig bildet. Natuerlich waere ich gluecklich, wenn ich darin auch wieder zu Worte kommen duerfte. Aber Sie wissen, ich habe einen grossen Teil meines Handapparates verloren; ich weiss nicht, ob es moeglich sein wird, noch einmal ueber exotische Stratiomyiden zu arbeiten".

Bacterial Origin of Muscle Pigment in a Cicada.

By S. Mahdihassan, Cipla Laboratories, Bombay.

(With 1 figure)

Platypleura octoguttata Fabr. is by far the most common species amongst the Cicadas of India. As previously reported (1), "its muscles have a fleshy pink colour, unlike most insect muscles which are white". This reddish pigment is also found externally on the insect body but to a minor degree. The basal ends of wings have a bright red pigment which may have the same origin. Apparently the pink colour by oxidation gives rise to an ochre colour, which is the main colour of the insect. Since the internal organs would prevent oxidation, the brown and pink pigments are not found internally excepting the symbiotic organ which shows only a faint pink coloration.

Sulc (2) and subsequently Buchner (3) reported the existence of tumours which harbour symbiotic microorganisms; the exact nature of these germs has not been established. Both the above named authorities are unanimous that the symbionts are yeast-like. Such germs exist in some Cicadas but only in the fatty tissue. However, as early as 1899, Heymons (4) studied the embryology of *Cicada septemdecim* and found a mass of granules in its egg, which naturally increased in size in the larva. Regarding this body Heymons wrote: "Es setzt sich aus einer grossen Masse kleiner Kuegelchen oder Koernchen zusammen". He could not have given a better description than in these few words. A section through the larva showing the granular mass has been illustrated by Heymons and copied by Buchner, from whose thesis Fig. 1 here has been taken. In Fig. 1, Ko is Heymon's original abbreviation for "Koernchenmasse" or granular mass. Both Sulc and Buchner have misinterpreted the nature of this granular body. What they have looked upon as yeasts, are in reality bacteria which, by their physical size, are more apt to be called granules. A careful study of the illustration given by Heymons shows no sign of any yeast having been present in the preparation of which the picture is an exact representation.

From *Platypleura octoguttata* the symbiotic bacteria were isolated. Insects which had just completed their last moult, were the ideal for this purpose. Fresh cultures of bacteria in smears compared well with those from the symbiotic organ. The bacteria fortunately produced a pigment which can confirm its identity.

When the culture was fresh, the colour of the bacterial colony was pink, like the colour of insect muscle; when the culture was old, the pigment became ochre brown, being the main colour of the insect. I had previously (1) supposed that there were two bacteria: one responsible for the pink, and another for the brown

pigment; but subsequent studies of pure cultures showed them to be one and the same germ.

The pink colour seems to be found as such mainly in the muscles. Cicadas, as a class, have powerful muscles. Those responsible for producing the noise of the Singing Cicadas are particularly well developed and are active for hours. I do not imagine that any other insect muscle can be more active. I have presumed that the pink colour of the muscle has a special respiratory role to perform.

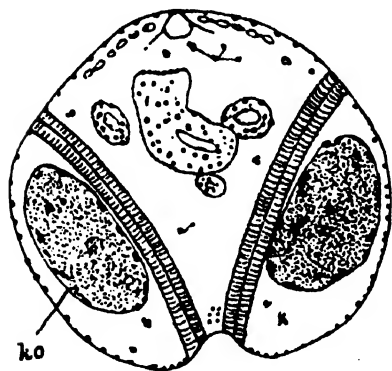


Fig. 1. Cross section through the larva of a Cicada, showing granule-like symbiotic bacteria; *Ko*, granular mass. (After Heymons, from Buchner).

Another feature to which attention may be drawn, particularly in a country like Brazil, is the specificity of symbiosis. When we compare two allied species of insects, there is bound to be colour variation. When we compare their symbionts, they differ also. When the symbionts produce pigments, there is also a physiological difference. I have seen some green Cicadas from Brazil and I have wondered if the muscles of this insect have the same colour. At any rate it is possible to prepare and conserve muscles from each species of insect quite easily. Dissected muscles can be conserved in pure glycerine and when several preparations have been made, their colour variation can be studied also in comparison with the pigments found on the bodies of the respective insects. The pink muscles of *P. octoguttata* conserved in glycerine show the same original coloration even six years after their preparation.

References.

- (1) Mahdihassan, S., The Deccan Medical Journal, Hyderabad, Deccan, India, 1941.
- (2) Sulc, K., Sitz. K. Boehm. Ges. Wiss., Prague, 1910.
- (3) Buchner, P., Arch. f. Prot., vol. 26, 1912.
- (4) Heymons, R., Nova Acta Leop. Carol. Akadem., vol. 74, 1899.

PERSONALIA.

All men of science are brothers.
Edgeworth David, 1914.

Hermann Schmitz, S. J.

Am 12. August vollendete der bekannte Phoridenspezialist P. Hermann Schmitz, S. J., sein 70. Lebensjahr. Geboren am 12. August 1878 zu Elberfeld als Sohn des Lehrers August Schmitz und seiner Ehefrau Gertrud geb. Breuer, besuchte er die Gymnasien zu Elberfeld und Rheinbach und trat 1894 in die Deutsche Provinz des Jesuitenordens ein.



Hermann Schmitz, S. J.

Nach Vollendung der philosophischen und theologischen Studien matrikulierte er sich 1911 an der Faculté des Sciences der Universitaet Loewen. Von Ende 1912 bis 1920 war er Professor der Biologie am Aloysiuskolleg zu Sittard (Holland). Von 1921-22 treffen wir ihn in Bonn, wo er an der dortigen Universitaet zoologische und mineralogische Vorlesungen hoerte. Seit 1923 war er in Valkenburg (Limburg, Holland) bei seinem Ordenskollegen P. Erich Wasmann taetig. Mai 1925 bezog er nochmals die Universitaet. Diesmal ging er nach Freiburg/Schweiz, wo er im Maerz 1926 unter Prof. Reichensperger zum Doktor promovierte mit einer gruendlichen Arbeit, die 1929 in Berlin unter dem Titel "Revision der Phoriden" erschien. Von 1926 bis 1942 lebte unser Jubilar meist in Valkenburg, wo er seit dem Tode Wasmann's die Sammlungen seines Ordenskollegen betreute und eifrig seine Phoridenstudien fortsetzte. 1926-34 war er Professor der Philosophie des Organischen in Valkenburg, 1937 und 1939 desgleichen in Tullabeg, Irland. Am 7. Juli 1942 wurde das Ignatiuskolleg von der Gestapo aufgeloeset und P. Schmitz wurde als Gefangener nach Aachen gebracht. Bald freigegeben, reiste er zunaechst nach Oesterreich zu seinem ehemaligen Schueler dem bekannten

Mymaridenspezialisten Pfarrer Soyka. Gegen Ende 1942 wurde er von seinen oesterreichischen Mitbruedern aufgenommen und lebte zunaechst in Wien, dann 1943 in Kalksburg und Innsbruck. Dezember 1943 wurde er nach Steyr versetzt. Seit Ende 1946 lebt er in Godesberg a. Rh. (Aloysiuskolleg).

Seit 1907 an Entomologie interessiert, hat P. Schmitz eine literarisch ueberaus fruchtbare Taetigkeit entfaltet. Seine erste Phoridenarbeit erschien 1912 im Zool. Anzeiger unter dem Titel: "*Chonocephalus fletcheri*, n. sp. Phoridae". Ueber diese morphologisch und biologisch hoechst interessante Dipterenfamilie hat P. Schmitz dann im Laufe der Jahre circa 200 Arbeiten veroeffentlicht. Augenblicklich arbeitet er an der Vollendung seines Beitrags "Phoridae" zu Lindner's Dipterenwerk, von dem bereits vier Lieferungen vorliegen. Seine Arbeitsweise ist vorbildlich. Prof. Brues, selbst ein hervorragender Kenner der Gruppe, nannte sie einmal treffend "uniformly painstaking". In der Systematik haelt er die goldene Mitte zwischen starrem Konservatismus und revolutionaerer Splitterei.

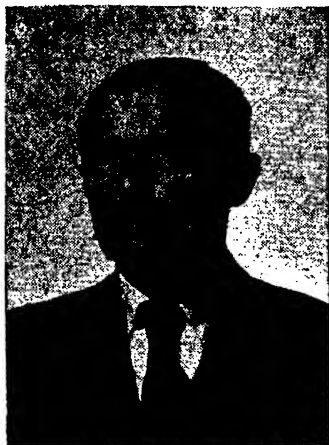
Seit mehr als 25 Jahren verbindet mich mit dem Jubilar die engste Freundschaft. Mit unglaublicher Geduld fuehrte er mich 1921-22 brieflich in die Geheimnisse der Phoridensystematik ein, sodass ich mich mit Recht als seinen Schueler betrachten kann. Mit Stolz bewahre ich noch heute die Manuskripte meiner ersten Neubeschreibungen auf, die er an Hand von gesandtem Material mit roter Tinte korrigierte. Dass ich Entomologe geworden bin, verdanke ich an erster Stelle ihm und seiner steten Hilfsbereitschaft. Er selbst schrieb mir einmal vor vielen Jahren: "Ich gehoere nicht zu den Entomologen, die meinen, sie muessten alles selbst beschreiben". Bei Gelegenheit meiner Europareise 1932 hatte ich das Vergnuegen, meinen Freund und Lehrer persoenlich kennen zu lernen. Ich besuchte ihn zweimal in Valkenburg, und wir nahmen auch zusammen am V. Internationalen Entomologen-Kongress (Paris, August 1932) teil. Es ist mir eine angenehme Pflicht, dem Jubilar auch an dieser Stelle fuer alle Anregung zu danken, die er mir im Laufe der Jahre gegeben hat. Moegen ihm noch viele Jahre friedvollen und fruchtbaren Schaffens beschieden sein, und moege es ihm vergoennt sein, sein grosses Phoridenwerk, von dem die fuenfte Lieferung bereits druckfertig vorliegt, zu gutem Abschluss zu fuehren. *Quod faxit Deus!*

T. Borgmeier, O. F. M.

Alfonso Dampf (1884-1948).

No dia 17 de Março deste ano faleceu inesperadamente na cidade do México o Prof. Dr. Alfonso Dampf. O extinto era chefe do Departamento de Entomologia Médica e Agrícola e Professor das mesmas disciplinas na Escola Nacional de Ciências Biológicas, do Instituto Politécnico Nacional do México. Nasceu em 20 de Novembro de 1884 na Ilha Dagoe, povoação de Kertell, República da Estônia, e era de nacionalidade alemã. Em 26 de Julho de 1909 doutorou-se *summa cum laude* em ciências naturais na Universidade de Koenigsberg. Em 1913 foi nomeado primeiro ajudante do Museu e Instituto Zoológico da mesma Universidade, onde teve a seu cargo as coleções entomológicas e malacológicas, dando ao mesmo tempo aulas de Entomologia Agrícola. No mesmo ano foi designado pelo Governo alemão entomólogo colonial para a África Oriental Alemã. Em 1914, ao estalar a primeira guerra mundial, incorporou-se ao comando da defesa colonial. Caindo prisio-

neiroi passou dois anos no Egito num campo de concentração. Em 1919 regressou para a Alemanha, onde reassumiu seu posto anterior na Universidade de Koenigsberg. Em 1923 foi distinguido com o título de Conselheiro Honorário do Governo. Em Setembro de 1923 foi contratado pelo Governo do México como Professor de Parasitologia Agrícola. Nesta qualidade fez investigações sobre os gafanhotos, dirigindo durante cinco anos o Departamento de Investigações da Divisão de Defesa Agrícola. Colaborou com o Departamento de Saúde Pública e com o Departamento Florestal e de Caça e Pesca na investigação das pragas. Em 1936 foi agraciado com uma bolsa de estudos da Funda-



Alfonso Dampf (1884-1948).

ção Guggenheim, a fim de investigar os transmissores da onchocercose e de outras moléstias. De 1938 até a sua morte dedicou-se com rara energia ao desempenho da sua função como Entomólogo na Escola Nacional de Ciências Biológicas. Publicou mais de 110 trabalhos, notabilizando-se principalmente pelas suas pesquisas sobre pulgas e flebotomos. O Dr. Dampf fez diversas expedições científicas. Em 1909 esteve no Egito, e em 1912 nas Ilhas Faeroer. De 1913 até 1917 trabalhou na África Oriental. Em 1925 visitou Yucatán, Honduras Britânica e Guatemala. Em 1926 esteve no Estado de Chiapas, e de 1927 até 1946 fez diversas viagens de estudo através de toda a República Mexicana. O extinto era membro de diversas sociedades científicas, tanto da Europa como do Continente Americano.

T. Borgmeier.

Oscar Monte (1895-1948).

No dia 1º de Julho deste ano faleceu em Belo Horizonte, onde se achava em tratamento de saúde, o Dr. Oscar Monte, conhecido entomologista do Instituto Biológico de São Paulo. Nasceu no Distrito Federal a 4 de Julho de 1895. Terminados os estudos secundários no Rio de Janeiro, matriculou-se na Escola de Agronomia e Veterinária de Belo Horizonte, diplomando-se em 1917. A fim de aperfeiçoar os seus conhecimentos, estagiou durante oito meses na Universidade de Cornell,

sob a orientação dos Drs. C. Crosby e E. Savage. Desde 1922, data em que começou a trabalhar no Serviço Federal do Algodão, interessou-se por assuntos entomológicos, especialmente aqueles ligados à agricultura. Durante vários anos foi Professor na Escola Superior de Agricultura de Belo Horizonte. Trabalhou também no Departamento de Defesa Sanitária da Agricultura de Minas Gerais. Em 1939 foi convidado para trabalhar no Instituto Biológico de São Paulo. De 1937 em diante dedicou-se à Entomologia Sistemática, especializando-se em Tingidae (Hem.). De espécies brasileiras desta família possuía uma das melhores coleções. Deixa cerca de 150 trabalhos publicados sobre assuntos de sua especialidade, em particular sobre pragas de culturas econômicas. Uma lista dos seus trabalhos, até 1944, encontra-se em "Cultura do Tomateiro" (Edição de Chácaras e Quintais, São Paulo, 1945). O extinto era sócio fundador da Sociedade Brasileira de Entomologia. Era também membro da Sociedade Brasileira de Biologia, e da Academia de Ciências e do Instituto Geográfico de Minas Gerais.

T. Borgmeier.

PEQUENAS COMUNICAÇÕES.

The 25th Anniversary of Barro Colorado Island, Canal Zone.

April 17, 1948.

To Friends of Barro Colorado Island:

Today marks the 25th anniversary of Barro Colorado Island. Would that we could have all of you here on the Island to celebrate fittingly this occasion. Most of you would see many changes, all for the better. During World War Two the Island continued its functions, and, in fact, was a busy, active spot, though unfortunately during this period only a few of our usual visitors were able to be with us.

You will be pleased to know that the War made no inroads here—there were no radar installations, no gun positions, no army or navy outposts. Due to the War, however, we were unable to issue our annual reports, so that the present one is the first to be distributed since 1940, and also the first in printed form. We hope that its pages may awaken in you a renewed interest in the laboratory, and a sincere desire to do something to help it in its efforts to serve our biologists.

By an Act of Congress, signed by the late President, Franklin Delano Roosevelt, on July 2, 1940, the old Barro Colorado Biological Laboratory became a government agency under the name of the *Canal Zone Biological Area*, administered by a Board under the general supervision of the National Academy of Sciences. While the Act provided that up to \$10,000 a year could be appropriated by Congress, due mainly to war conditions, no funds were obtained from this source. You may well wonder how we are able to keep the laboratory going without an appropriation.

Were it not for our table subscriptions, fees from scientists, fees from casual visitors, a few donations, and service fees from agencies that were conducting corrosion and deterioration studies, there would have been rough sledding. It was bad enough; but all this is a good omen, for it shows what can be accomplished when we receive a more adequate income.

As a further addition to the history of this period, under Reorganization Plan No. 3 of 1946, which became effective July 16, 1946, President Harry S. Truman placed the Canal Zone Biological Area under the direction of the Smithsonian Institution. For the first time, a small appropriation has been available this year but not for the general running expenses of the laboratory. While the present amount is little enough it is of definite assistance. The money from this source will be devoted mainly to renovation and repairs which have fallen behind during the war period.

Since the Annual Report speaks for the laboratory, it is not necessary to repeat its details. However, it is believed that an appeal is in order. As you can see, only a few institutions now support tables at the laboratory. We should have more help from this source. Despite present high costs we continue to charge only \$3.00 a day for meals and lodging for such as come from supporting institutions. We, therefore, urge you to use your good influence, either directly or through others, to get more institutions to take table subscriptions at \$300.00 per year. All such funds are directly useable here to purchase what is most needed. Then, also, perhaps you may be in position to approach individuals who would be glad to help the laboratory financially. Certainly very few laboratories are more worthy of such attention than is ours.

Our installations and facilities should begin to improve steadily with

governmental support now becoming available. However, we need your help very much for current running expenses and for special equipment of various kinds. With your united aid we can have this and more.

Incidentally, in the past much work was done on the Island in the study of corrosion and deterioration; the annual report tells of some of this work. A very modest monthly fee is charged such concerns as wish to avail themselves of the unique facilities which the Island offers for such work. Work along this line is an important Island activity.

Finally, we would like to have all of you re-visit the Island. You who have been here before know what Barro Colorado has to offer, hence you are our ambassadors-at-large. Urge and encourage others to take advantage of the Island's facilities.

James Zetek, Manager,
Drawer C, Balboa
Canal Zone.

Alexander Wetmore, Secretary,
Smithsonian Institution,
Washington 25, D. C.

Opinions and Declarations rendered by the International Commission on Zoological Nomenclature.

I. Opinions.

No. 158. — On the status of the name *Locusta* Linnaeus, 1758 (Orth.).

No. 159. — On the status of the names *Ephialtes* Schrank, 1802, *Ichneumon* Linnaeus, 1758, *Pimpla* Fabricius, (1804-1805), and *Ephialtes* Gravenhorst, 1829 (Hym.).

No. 161. — Suspension of the rules for *Argynnis* Fabricius, 1807 (Lep.).

No. 162. — Suspension of the rules for *Bracon* Fabricius, (1804-1805) (Hym.).

No. 163. — Suspension of the rules for *Euploea* Fabricius, 1807 (Lep.).

No. 164. — On the principles to be observed in interpreting Article 30 of the International Code in relation to the types of genera when two or more genera are united on taxonomic grounds.

No. 165. — Need for the suspension of the rules for *Strymon* Hübner, 1818 (Lep.) not established.

No. 166. — On the status of the names *Pompilus* Fabricius, 1798, and *Psammochares* Latreille, 1796 (Hym.) and of the alleged generic name *Pompilus* Schneider, 1784 (Class Cephalopoda, Order Nautiloidea).

No. 167. — Suspension of the rules for *Euthalia* Hübner, (1819) (Lep.).

No. 168. — On the principles to be observed in interpreting Article 30 of the International Code in relation to the names of genera based upon erroneously determined species (Opinion supplementary to Opinion 65).

No. 169. — On the type of the genus *Lycaeides* Hübner, (1819) (Lep.), a genus based upon an erroneously determined species.

No. 170. — Need for the suspension of the rules for *Prosopis* Jurine, 1807 (Hym.) not at present established.

No. 171. — Suspension of the rules for *Nymphidium* Fabricius, 1807 (Lep.).

No. 172. — On the interpretation of Article 30 of the International Code in relation to the designation, in abstracts and similar publications, of the types of genera, the names of which were published on, or before, 31st December 1930.

No. 173. — On the type of the genus *Agriades* Hübner (1819), and its synonym *Latorina* Tutt, 1909 (Lep.), genera based upon an erroneously determined species.

No. 174. — On the status of the names *Ceraphron* Panzer (1805), and *Ceraphron* Jurine, 1807 (Hym.).

No. 175. — On the type of the genus *Polyommatus* Latreille, 1804 (Lep.), a genus based upon an erroneously determined species.

No. 177. — On the type of the genus *Euchloë* Hübner (1819) (Lep.), a genus based upon an erroneously determined species.

No. 178. — On the status of the names *Serphus* Schrank, 1780, and *Proctotrupes* Latreille, 1796 (Hym.).

No. 179. — On the type of the genus *Princeps* Hübner (1807), and its synonym *Orpheides* Hübner (1819) (Lep.), genera based upon erroneously determined species.

No. 180. — On the status of the names *Sphex* Linnaeus, 1758, and *Ammophila* Kirby, 1798 (Hym.).

No. 187. — On the type of the genus *Hypselopus* Burmeister, 1835 (Hem.).

No. 191. — On the question whether the use of a new name in explanation of a photograph or other illustration distributed by an author to students or colleagues constitutes "publication" within the meaning of proviso (a) to Article 25 of the International Code.

II. Declarations.

No. 1. — Code of ethics to be observed in the renaming of homonyms.

No. 2. — On the importance of avoiding the issue of author's reprints of separata in advance of the publication of the work or journal in which the paper in question is to be published.

No. 3. — On the importance of giving clear indication of the date of issue of every zoological publication.

No. 4. — On the need for avoiding intemperate language in discussions on zoological nomenclature.

No. 5. — On the grant to the International Commission on Zoological Nomenclature of plenary powers to suspend the rules in certain cases.

No. 6. — On the need for new names to be clearly indicated as such on their first publication and on the need for avoiding the publication of names as new on more than one occasion.

No. 7. — On the need for quoting bibliographical or other references for all names cited in zoological works.

No. 8. — On the need for giving in the case of zoological journals a clear indication of the date of publication of each number or part.

No. 9. — On the desirability of Universities including zoological nomenclature in their courses of general and systematic zoology.

No. 10. — On the importance of forming specialist groups for the study of the nomenclature of particular divisions of the Animal Kingdom.

No. 11. — On the need for a clear definition in the description of new genera and species of the Order and Family involved.

No. 12. — On the question of breaches of the Code of Ethics (Declaration supplementary to Declaration 1).

• Notícias Diversas.

O Prof. Dr. J. Douglas Hood, da Universidade de Cornell, por ocasião da sua recente visita ao Brasil (Maio e Junho, 1948) fez uma conferência interessante na Sociedade Brasileira de Entomologia (São

Paulo), falando sobre o "Efeito do meio sobre os caracteres usados para identificação dos insetos". A palestra, que foi muito apreciada, obedeceu ao seguinte esquema: 1) "Fases"; o trabalho de Faure sobre as "fases" dos gafanhotos. 2) "Fases" semelhantes nos Thysanoptera. 3) A significação desse fenômeno; heterogonia; trabalho de Huxley: "Problems in relative growth". 4) Ocorrência provavelmente universal e já observada em plantas, acarinos, crustáceos, coleópteros, lepidópteros e tisanópteros. 5) Casos observados em Thysanoptera; uso de curvas: *Hoplothrips major*, *Dasythrips regalis*, *D. fraterculus*, *Pathothrips proteus*. 6) Conclusões: É necessário conhecer os insetos no campo, criar os insetos a serem estudados, procurar os caracteres sexuais secundários; justificação do seguinte aforisma: "Unus character, character nullus". (Bol. Soc. Bras. Ent., vol. 1, n. 2, Set. 1948; mimeogr.)

O Dr. Mauro Pereira Barretto foi contemplado com uma Bolsa de Estudos da Fundação Guggenheim para o corrente ano. O Dr. Barretto utilizar-se-á dessa Bolsa para, no estrangeiro, prosseguir nos seus estudos da família Tabanidae.

Acaba de regressar dos Estados Unidos, onde se demorou cerca de um ano, o Sr. Mário Autuori, do Instituto Biológico de São Paulo. O Sr. Autuori estagiou na Universidade de Cornell (Ithaca, N. Y.), onde realizou estudos principalmente sobre histologia de formigas.

No dia 8 de Abril faleceu em Philadelphia, Pa., o Dr. Ezra T. Cresson, Jr., uma das maiores autoridades na família Ephydridae (Dipt.). Durante 39 anos o Dr. Cresson fez parte do grupo de cientistas que trabalham na Academia de Ciências Naturais de Philadelphia. Foi também por muito tempo um dos redatores da revista "Entomological News".

O conhecido dipterologista Prof. Dr. I. C. H. de Meijere faleceu em Novembro de 1947 em Amsterdam, Holanda.

O Dr. James A. G. Rehn acaba de publicar interessante artigo sobre a vida do Dr. Morgan Hebard (1887-1946), notável pesquisador dos Dermaptera e Orthoptera. (Vide Ent. News, Março de 1948, pp. 57-69, 1 foto).

Na idade avançada de 81 anos, faleceu em 26 de Janeiro de 1948, em San Diego, Califórnia, o Prof. T. D. A. Cockerell, conhecida autoridade em Apidae (Hym.), mas também especialista em outras matérias como sejam Botânica, Malacologia e Paleontologia. "In an age of specialization, when so many are almost compelled to wear intellectual blinders lest their interest stray beyond imposed limits, Cockerell succeeded in being a specialist in various fields", assim diz Herbert F. Schwarz no seu necrológio em Ent. News (Abril 1948). O Prof. Cockerell era natural de Norwood, Inglaterra, onde nasceu a 22 de Agosto de 1866. Publicou mais de 5.500 novos nomes para espécies, subespécies e variedades de abelhas, e cerca de 150 novos nomes para gêneros e subgêneros.

Advice has reached us that in the riots at Bogotá, on April 10, 1948, the Museo de La Salle and most of the attached buildings were entirely destroyed by fire. The collections in the Museo which were lost were among the most important zoological series in South America, largely accumulated through the labors of the Brothers Apolinar Maria and Nicéforo Maria, which extended over many years. The deep sympathy of scientific scholars all over the world will, we know, go to these colleagues, who have lost much that cannot be replaced. (Ent. News, Abril 1948, p. 103).

BIBLIOGRAFIA.

Por T. Borgmeier, O. F. M.

Coleoptera.

- Apolinar Maria, H., Catálogo sistemático, sinonímico y geográfico de los insectos del genero *Carabus* (latu sensu) que figuran en la colección del Instituto de La Salle. — Rev. Acad. Colombiana, Bogotá, vol. 6, 1946, pp. 554-559.
- Arrow, G. J., A new giant species of Ruteline Coleoptera. — Proc. R. Ent. Soc. London (B), vol. 15, 1946, pp. 49-50, 1 fig.
- Spodoctamys latipes* n. sp. (Equador).
- Balazuc, J., Variation et anomalies de la striation élytrale chez les Coléoptères. — L'Entomologiste, Paris, vol. 1, 1945, pp. 123-125, 1 fig.
- Balfour-Browne, F., The proventriculus of the Coleoptera (Adephaga) and other insects, a study in evolution. — Jour. R. Micr. Soc., London, (3) vol. 64, 1944, pp. 68-117, 55 figs.
- Balfour-Browne, J., Two new species of *Gyretes* (Col. Gyrinidae) from Brazil. — Entomologist, London, vol. 79, 1946, pp. 172-173.
- Balthasar, V., De uno genere et nonnullis Aphodiinarum speciebus novis. — Acta Soc. Ent. Csl., Praga, vol. 42, 1945, pp. 104-115.
- Passaliolla depressa* n. g. n. sp. (Brasil).
- Balthasar, V., Neue Arten der palaearktischen und neotropischen coprophagen Scarabaeiden (Col.). — Ent. Listy, Brno, vol. 2, 1939, pp. 41-47.
- Espécies novas de *Onthophagus* (Equador, etc.).
- Balthasar, V., Neue *Canthidium*-Arten. — Ent. Nachrbl. Troppau, vol. 13, 1939, pp. 111-140.
- Traz numerosas espécies neotrópicas.
- Balthasar, V., Ueber die Nervatur des Hinterflügels der Lamellicornien. Eine phylogenetisch-systematische und vergleichend-morphologische Studie. (Em tcheco, com sumário em alemão). — Věst. České Společ. Nauk, Praga, 1942 (1943), n. 11, pp. 1-44, 9 pls.
- Balthasar, V., Neue Scarabaeiden aus Sued-Amerika. — Acta Soc. Ent. Bohem., Praga, vol. 39, 1942, pp. 36-44, 1 fig.
- Barber, H. S., A new tortoise beetle from Texas. (Col. Cassidinae). — Bull. Brookl. Ent. Soc., Lancaster, vol. 41, 1946, pp. 102-103.
- Orectis sublaevis* n. sp.
- Beck, P., Contribution à l'étude de la faune de Costa Rica. Coléoptères Lamellicornes Dynastinae. — Bull. Soc. Hist. Nat. Toulouse, vol. 77, 1942, pp. 29-32.
- Refere-se a espécies já conhecidas.
- Becker, G., Oekologische und physiologische Untersuchungen ueber die holzerzerstoerenden Larven von *Anobium punctatum* De Geer. — Zs. Morph. Oekol. Tiere, Berlin, vol. 39, 1942, pp. 98-152, 31 figs.
- Beheim, D., Ueber den taxonomischen und isolierenden Wert der Forcepsvariation einiger Caraboidea. Eine morphologische Studie. — Zs. Morph. Oekol. Tiere, Berlin, vol. 39, 1942, pp. 21-46, 62 figs.
- Beier, M., Zur Kenntnis von Koerperbau und Lebensweise der Helminen (Col. Dryopidae). — Eos, Madrid, vol. 24, 1948, pp. 123-211, 26 figs.
- Trata da ecologia, órgãos de alimentação, de respiração e do ciclo evolutivo dos Helminae.
- Bertrand, H., Notes écologiques sur la distribution des Coléoptères aquatiques et orophiles. — L'Entomologiste, Paris, vol. 2, 1946, pp. 143-154.
- Blake, D. H., Nine new species of *Metachroma* (Col.) from the West Indies. — Jour. Wash. Acad. Sci., Menasha, vol. 36, 1946, pp. 22-27, 9 figs.
- Fam. Eumolpidae.

- Blake, D. H., Species of beetles of the genus *Lactica* from the West Indies closely related to *L. tibialis* (Olivier). — J. Wash. Acad. Sci., Menasha, vol. 36, 1946, pp. 267-269, 7 figs.
Fam. Halticidae.
- Blake, D. H., Seven new species of West Indian Chrysomelidae (Col.). — Proc. Ent. Soc. Wash. vol. 48, 1946, pp. 111-119, 1 pl.
Exochognathus limbatus n. g. n. sp. (Cuba), etc.
- Bolívar y Pieltain, C., Notas complementarias sobre *Eoxenos laboubenei* Peyer (Ins. Streps.). — Ciencia, México, vol. 6, (1945) 1946, pp. 371-373.
- Bradley, J. C., The family name of Anthribidae (Col.), the identity of *Amblycerus* Thunberg, and the taxonomic position of *Eusphyrus* Le Conte. — Bull. Brookl. Ent. Soc., Lancaster, vol. 41, 1946, pp. 96-99.
- Crowson, R. A., A revision of the genera of the Chrysomelid group Sagrinae (Col.). — Trans. R. Ent. Soc. London, vol. 97, 1946, pp. 75-115, 36 figs.
Traz uma espécie nova do México: *Aulacoscelis melyroides*.
- Dallas, E. D., Monografía de *Calosoma* (Castrida) *argentiniense* Csiki (Col. Carabidae). — Physis, B. Aires, vol. 17, 1939, pp. 771-789, 2 figs., 2 map.
- Denier, P. C. L., De Coccinellidis brethesianis. Typorum specierum recensio. — Physis, B. Aires, vol. 17, 1939, pp. 569-587.
- Dillon, L. S. & E. S., The tribe Onciderini (Col. Cerambycidae). Part II. — Sci. Publ. Reading Publ. Mus., Reading, n. 6, 1946, pp. 189-413, 17 pls.
Traz numerosas espécies novas da região neotrópica.
- Dillon, L. S. & E. S., Review of the Oncocephalini (Col. Cerambycidae). — Trans. Amer. Ent. Soc., Philadelphia, vol. 72, 1946, pp. 27-48, 1 pl.
- Duval, G., Uma nova espécie de *Lissorhoptrus* Lec. (Col. Curc.). — Arq. Inst. Biol., S. Paulo, vol. 16, 1945, pp. 337-342, 1 pl., 6 figs.
L. foveolatus n. sp. (Brasil).
- Falanghe, O., Constatação de uma coleobroca como praga de abacaxi. — O Biológico, S. Paulo, vol. 14, 1948, pp. 165-167, 1 fig., 1 est.
Refere-se a *Paradiaphorus crenatus* Billberg (Col. Rhynch.).
- Falanghe, O., Constatação de uma coleobroca como praga de abacaxi. — O Biológico, S. Paulo, vol. 14, 1948, pp. 165-167, 1 fig.
Refere-se a *Paradiaphorus crenatus* (Billberg) (Col. Rhynch.).
- Fiedler, C., Neue suedamerikanische Arten der Gattung *Rhyssomatus* Schoenh. (Col. Curc. Cryptorhynch.). — Ent. Nachrbl., Toppau, vol. 13, 1939, pp. 1-16, 81-92.
- Fiedler, C., Die suedamerikanischen Arten der Gattung *Acalles* Schoenh. (Col. Curc. Cryptorhynch.). — Mitt. Muench. Ent. Ges., Munich, vol. 30, 1940, pp. 642-667, 820-842.
- Gentil, K., Beitrag zur Morphologie und Optik der Schillersuppen von *Hoplia coerulea* Drury und *Hoplia farinosa* Linné (Col.). — Zs. Morph. Oekol. Tiere, Berlin, vol. 40, 1944, pp. 299-313, 32 figs.
- Guérin, J., Megalopodidae neotropicaes. Descrição de um novo gênero e novas espécies (Col.). — Rev. Brasil. Biologia, Rio de Janeiro, vol. 8, 1948, pp. 69-72, 3 figs.
Contém *Mastosthetus costaricensis* n. sp., *Agathomerus nicki* n. sp. e *Nickimerus setosus* n. g. n. sp.
- Guignot, F., Génotypes des Dytiscoidea et des Gyronoidea. — Rev. Franç. Ent., Paris, vol. 13, pp. 112-118.
- Hinton, H. E., A synopsis of the Peruvian species of *Cylloepus* Er. (Col. Elmidae). — Ann. Mag. Nat. Hist., London (11) vol. 13, 1946, pp. 713-733, 11 figs.
- Hinton, H. E., A key to the species of *Xenelmis* Hinton, with descriptions of three new species (Col. Elmidae). — Ent. Mo. Mag., London, vol. 83, 1946, pp. 237-241, 4 figs.
X. teres, *audax* e *comis* n. spp., do Brasil e da Argentina.

- Hinton, H. E., A synopsis of Brazilian species of *Elsianus* Sharp (Col. Elmidae). — Trans. R. Ent. Soc. London, vol. 96, 1946, pp. 125-149, 47 figs.
- Hinton, H. E., The "Gintraps" of some beetle pupae; a protective device which appears to be unknown. — Trans. R. Ent. Soc. London, vol. 97, 1946, pp. 473-496, 27 figs.
- Hustache, A., Zypopinae de l'Amérique méridionale (Deuxième série). — Sborn. Ent. Odd. nár. Mus. Praze, vol. 17, 1939, pp. 162-190, 1 fig.
- Islas S., F., Un género y tres especies nuevos de Aphodiinos mexicanos (Col. Scarabaeidae). — An. Inst. Biol. Mexico, vol. 16 (1945) 1946, pp. 451-457, 3 figs.
- Jaschke, P., Beitrage zur Kenntnis der Cicindelidenelytren, insbesondere der Zusammenhaenge zwischen Zeichnung und innerem Aufbau. — Zs. Morph. Oekol. Tiere, Berlin, vol. 40, 1944, pp. 418-450, 33 figs.
- Lange, R. B., Ensaio da zoogeografia dos Scarabaeidae do Paraná com algumas notas eto-ecológicas. — Rev. Mus. Paranaense, Curitiba, vol. 6, 1946/47, pp. 305-315.
- La Rivers, L., A re-definition of the tribe Edrotini (Col. Tenebrionidae). — Ent. News, Philadelphia, vol. 59, 1948, pp. 141-145.
- Leitner, E., Morphologische und entwicklungsbiologische Untersuchungen an Laufkaefern der Gattung *Trechus*. Ein Beitrag zur Frage der Artbildung. — Zool. Jahrb. Anat., vol. 68, 1943, pp. 227-272, 30 figs.
- Martinez, A., Insectos nuevos o poco conocidos. VI. (Col. Scarabaeidae). — Rev. Soc. Ent. Arg., B. Aires, vol. 14, 1948, pp. 3-11.
- Traz 2 gêneros novos: *Scybalocanthon* e *Heterocotinis*.
- Monrós, F., A propósito de algunos Chrysomeloidea neotropicales (Col.). — Notas Mus. La Plata, B. Aires, vol. 10 (Zool.), 1945, pp. 143-155, 5 figs.
- Obenberger, J., De specie et subgenere novo Buprestidarum Brasiliae (Col. Bupr.). — Acta Soc. Ent. Bohem., Praga, vol. 38, 1941, pp. 75-76.
- Obenberger, J., De duabus regionis neotropicae Agrilinis novis (Col. Bupr.). — Acta Soc. Ent. Bohem., Praga, vol. 40, 1943, pp. 127-128.
- Obenberger, J., De generis *Pachyschelus* Sol. regionis neotropicae speciebus novis (Col. Bupr.). — Sborn. Ent. Odd. nár. Mus. Praga, vol. 18, 1940, pp. 172-176.
- Ogloblin, A. A., Un Oedemérito perjudicial a la yerba mate (*Copidita argentina* Pic). — Physis, B. Aires, vol. 17, 1939, pp. 227-244, 4 figs.
- Pereira, F. S., C. M. F., *Pinotus* da secção *batesi*. — Rev. Mus. Paranaense, Curitiba, vol. 6, 1946/47, pp. 317-328, 1 est.
- Pic, M., Sur divers coléoptères phytophages de la République Argentine. — Rev. Soc. Ent. Arg., B. Aires, vol. 14, 1948, pp. 51-55.
- Megalopus foveifrons* n. sp. (Tucumán).
- Robinson, M., Remarks of a few Scarabaeidae (Col.). — Ent. News, Philadelphia, vol. 59, 1948, pp. 175-177.
- Robinson, M., Two new species of Neotropical Scarabaeidae (Col.). — Ent. News, Philadelphia, vol. 59, 1948, pp. 149-151.
- Trichillum pilosus* e *Anomala chapini* n. spp.
- Robinson, M., Studies in the Scarabaeidae. IV. — Trans. Amer. Ent. Soc., Philadelphia, vol. 74, 1948, pp. 29-36, 4 figs.
- Traz espécies novas de *Canthon*, *Eucanthus* e *Phyllophaga*.
- Robinson, M., A new species of *Anaides* from Peru (Scarabaeidae: Col.). — Ent. News, Philadelphia, vol. 59, 1948, pp. 35-36.
- A. rugosa* n. sp.
- Robinson, M., A new species of *Canthon* from Venezuela. — Ent. News, Philadelphia, vol. 59, 1948, p. 37.
- C. bifurcatus* n. sp.
- Wittmer, W., Supplément au catalogue des Drilidae (Col. Malacodermata). — Rev. Soc. Ent. Arg., B. Aires, vol. 14, 1948, pp. 115-116.

Wittmer, W., 5. Beitrag zur Kenntnis der neotropischen Malacodermata. — Rev. Soc. Ent. Arg., B. Aires, vol. 14, 1948, pp. 17-21.

Traz espécies novas de *Phrixothrix*, *Cryptolaisus*, *Lemphus* e *Attalus*.

Wittmer, W., 6. Beitrag zur Kenntnis der neotropischen Malacodermata. — Rev. Soc. Ent. Arg., B. Aires, vol. 14, 1948, pp. 148-154.

Espécies novas de *Discodon*, *Silis*, *Parasilis* e *Cryptotarsus*.

Zikán, J. F., O gênero *Parandra* Latr. 1804, com a descrição de 14 espécies novas (Col. Cerambycidae). — Rev. Soc. Ent. Arg., B. Aires, vol. 14, 1948, pp. 22-50, 4 pls.

Traz uma chave das espécies do gênero, e as descrições das espécies novas, quase todas provenientes do Brasil.

Hymenoptera.

Araujo, R. L., Contribuição para o conhecimento do gênero *Metapolybia* Ducke, 1905 (Hym. Vespidae). — Arq. Inst. Biol. S. Paulo, vol. 16, 1945, pp. 65-82, 12 figs., 2 pls.

Bolwig, N., On the effect of vitamin E on the larvae of the honey bee (*Apis mellifica*). — Ent. Medd., Copenhagen, vol. 22, 1942, pp. 295-298.

Borchert, A., Die parasitologische Bedeutung der Nosemainfektion fuer das Bienenvolk. — Zs. Parasitenk., Berlin, vol. 11, 1940, pp. 484-509, 1 fig.

Brown, Jr., W. L., The status of the genus *Hercynia* J. Enzmann (Hym. Formicidae). — Ent. News, Philadelphia, vol. 59, 1948, p. 102.

H. panamana Enzmann é sinônimo de *Wasmannia auropunctata* Roger.

Brown, Jr., W. L., A preliminary generic revision of the higher Dacetini (Hym. Formicidae). — Trans. Amer. Ent. Soc., Philadelphia, vol. 74, 1948, pp. 101-129, 2 figs.

Traz uma chave e as descrições dos seguintes gêneros novos: *Smithistruma* (com 4 subgêneros novos), *Neostruma*, *Dorisidris*, *Alistruma*, *Mesostruma*, *Hexadaceton*, *Miccostruma* e *Clarkistruma*.

Cristóbal, U. López, *Calliephaltes argentinus* Blanchard, icneumonídeo de la serie parasítica enemigo del gusano de las frutas, nuevo para la ciencia y apto para la lucha biológica. — Physis, B. Aires, vol. 18, 1939, pp. 477-486, 1 pl.

De Santis, L., Adiciones a la fauna argentina de Afelinídeos (Hym. Chalcid.). — Notas Mus. La Plata, vol. 13, 1948, pp. 43-48, 3 figs.

Encarsia hispida n. sp.

De Santis, L., Un caso interesante de foresia. — Notas Museo La Plata, vol. 13, 1948, pp. 129-135, 2 figs.

Refere-se a *Grassator viator* n. sp. (Hym. Entedontidae), encontrado sobre *Naupactus xanthographus* Germ. (Col. Curc.).

De Santis, L., Dos nuevos Chalcidoideos interesantes (Hym. Chalcidoidea). — Rev. Soc. Ent. Arg., B. Aires, vol. 13, 1947, pp. 281-291, 3 figs.

Pseudaphycus griseus (Encyrtidae) e *Coccophagus semiatratus* (Aphelinidae) n. spp.

De Santis, L., Estudio monográfico de los Afelinídeos de la República Argentina (Hym. Chalcidoidea). — Rev. Mus. La Plata, (n. s.) vol. 5; Sec. Zool., pp. 23-280, 52 figs.

Trabalho que abrange a morfologia, biologia e taxonomia, contendo as seguintes novidades: *Aphytis dubius* (com a v. *intermedia*), *Ablerus ciliatus*, *Azotus similis*, *Prospaltella aurantii* v. *argentina* e *Encarsia bicolor*.

Donisthorpe, H., Some gynandromorph ants and a possible pterergate from Ireland. — Entomologist, vol. 80, 1947, pp. 277-279.

Eidmann, H., Zur Kenntnis der *Crematogaster impressa* Em. (Hym. Formicidae) und ihrer Gaeste. — Zool. Anz., Leipzig, vol. 136, 1941, pp. 207-220.

Observações feitas na África, com referências a *Euryplatea eidmanni* Schmitz (Dipt. Phoridae).

- Eidmann, H., Die Ueberwinterung der Ameisen. — Zs. Morph. Oekol. Tiere, Berlin, vol. 39, 1943, pp. 217-275, 14 figs.
- Fleming, H., The Meliponidae (stingless bees) of Caripito, northeastern Venezuela. — Zoologica, New York, vol. 30, 1945, p. 267.
- Flanders, S. E., Control of sex and sex-limited polymorphism in the Hymenoptera. — Quart. Rev. Biol., Baltimore, vol. 21, 1946, pp. 135-143.
- Fouts, R. M., Parasitic wasps of the genus *Trimorus* in North America. — Proc. U. S. Nat. Mus., Washington, vol. 98, 1948, pp. 91-148, 15 figs.
- Traz uma chave dos gêneros dos Teleasinae (fam. Scelionidae) e numerosas espécies novas de *Trimorus*.
- Franz, E., Blattschneider-Ameisen in Europa. — Natur u. Volk, Frankfurt a. M., vol. 73, 1943, pp. 84-86, 1 fig.
- Franz, E., *Cephalotes atratus* L., eine in Mittel- und Suedamerika heimische Ameise. — Natur u. Volk, Frankfurt a. M., vol. 72, 1942, pp. 163-165.
- Freisling, J., Zur Psychologie der Feldwespe. — Zs. Tierpsychol., Berlin, vol. 5, 1943, pp. 438-463, 23 figs.
- Frenguelli, J., Un nido de Esférido del cretáceo superior del Uruguay. — Notas Mus. La Plata (Paleont.), vol. 11, 1946, pp. 259-267, 1 pl.
- Frisch, K., Weitere Versuche ueber die Lenkung des Bienenfluges durch Duftstoffe. — Biol. Zlb., Leipzig, vol. 64, 1944, pp. 237-266, 10 figs.
- Frisch, K., Die "Sprache" der Bienen und ihre Nutzenanwendung in der Landwirtschaft. — Experientia, Basel, vol. 2, 1946, pp. 397-404, 8 figs.
- Frisch, K., Die Taenze der Bienen. — Oesterr. Zool. Zs., Vienna, vol. 1, 1946, pp. 1-48, 16 figs.
- Gahan, A. B. & Peck, O., Notes on some Ashmeadian genotypes in the Hymenopterous superfamily Chalcidoidea. — Jour. Wash. Acad. Sci., Menasha, vol. 36, 1946, pp. 314-317.
- Goetze, G. & Schmidt, H., Ein neues Duftorgan der maennlichen Honigbiene und seine Bedeutung fuer die Systematik der Bienenrassen (*Apis mellifica*). — Zool. Jahrb. Syst., vol. 75, 1942, pp. 337-348, 6 figs.
- Gösswald, K., Rassenstudien an der roten Waldameise *Formica rufa* L. auf systematischer, oekologischer, physiologischer und biologischer Grundlage. — Zs. Angew. Ent., Berlin, vol. 28, 1941, pp. 62-124, 9 figs.
- Gregg, E. V., A statistical study of taxonomic categories in ants (Formicidae: *Lasius neoniger* and *Dasius americanus*). — Ann. Ent. Soc. Amer., Columbus, vol. 38, 1945, pp. 529-548, 2 figs.
- Griot, M., Gahan, H., Silberman, R. & Icart, A., Observaciones sobre un parásito secundario del bicho de cesto. — Inst. Sanid. Veget., B. Aires (A) n. 10, 1946, 7 pp., 4 figs.
- Hambleton, J. L., The indispensable honeybee. — Rep. Smithson. Inst., Washington, 1945 (1946), pp. 293-304, 4 pls.
- Kennedy, C. H., Myrmecological technique. The use of ether in collecting ants. — Ohio J. Sci., Columbus, vol. 46, 1946, pp. 10-12.
- Kutter, H., Beitrag zur Kenntnis der Leptanillinae (Hym. Formicidae). Eine neue Ameisengattung aus Sued-Indien. — Mitt. Schweiz. Ent. Ges., vol. 21, 1948, pp. 286-295, 7 figs.
- Leptomesites escheri*, n. g. n. sp.
- MacDonagh, E. J., Las hormigas Attinae de Patagones y rectificación de la supuesta *Oecodoma* de Hudson. — Physis, B. Aires, vol. 17, 1939, pp. 211-215, 3 figs.
- Michener, C. D., Notes on the habits of some Panamanian stingless bees (Hym. Apidae). — J. New York Ent. Soc., vol. 54, 1946, pp. 179-197.
- Morley, D. W., The interspecific relations of ants. — J. Anim. Ecol., London, vol. 15, 1946, pp. 150-154.
- Morley, D. W., Division of labour in ants. — Nature, London, vol. 158, 1946, pp. 913-914.

- Ogloblin, A. A., Descripción de un género nuevo de la familia Myrmacidae (Hym.). — Physis, B. Aires, vol. 17, 1939, pp. 217-225, 6 figs.
Bruchomyrmex n. g. *mirabilicornis*, *soror* n. spp. (Argentina).
- Ogloblin, A. A., Descriptions of new genera and species of Myrmacidae (Hym. Chalcidoidea). — Iowa State Coll. J. Sci., Ames, vol. 20, 1946, pp. 277-295, 19 figs.
Tetrapolynema mexicanum n. g. n. sp., etc.
- O'Rourke, F. J., Method used by wasps of the genus *Vespa* in killing prey. — The Irish Nat. Jour., Dublin, vol. 8, 1945, pp. 238-241.
- O'Rourke, F. J., The occurrence of three mermithogynes at Roundstone, Connemara, with notes on the ants of the area. — Entom. Rec., London, 1946, pp. 65-70.
- O'Rourke, F. J., The rate of progression in ants. — Entom. Rec., London, 1947, pp. 2-3.
- O'Rourke, F. J., A *Lasius mixtus* Nyl. pterergate from Co. Wicklow (Formicidae). — Ent. Mo. Mag., London, 1948, pp. 8-9, 1 fig.
- O'Rourke, J., The climbing rate of the ant *Formica rufa* L. in Switzerland. — Ent. Rec., London, 1947 (Oct. 15).
- Pate, V. S. L., A new *Isodontia* from Cuba (Hym. Sphecidae: Chlorini). — Ent. News, Philadelphia, vol. 59, pp. 185-187.
I. poeyi n. sp.
- Pate, V. S. L., A review of the genus *Moniaecera* (Hym. Sphecidae: Pemphilini). — Trans. Amer. Ent. Soc., Philadelphia, vol. 74, 1948, pp. 41-60, 6 figs.
 O autor descreve *M. foxiana* e *M. (Huavea* n. subg.) *chontale* n. spp. A última é proveniente do México.
- Schneirla, T. C., Army-ant life and behavior under dry-season conditions with special reference to reproductive functions. II. The appearance and fate of the males. — Zoologica, New York, vol. 33, 1948, pp. 89-112, 1 fig., 3 tab., 1 pl.
- Observações feitas em Barro Colorado Island (Panamá) em *Eciton burchelli* e *hamatum*.
- Schneirla, T. C., Studies on the relation between learning and social activities in ants. — Year Book Amer. Phil. Soc., 1945, pp. 168-170.
- Schwarz, H. F., The stingless bees (Meliponidae) of the Western Hemisphere. Part II. — Bull. Amer. Mus. Nat. Hist., New York, vol. 90, 1948, XVIII&546 pp., 87 figs., 8 pls. \$7.00.
- Segunda parte de uma monografia importante, tratando de *Lestrimelitta* e vários subgêneros de *Trigona*. Na introdução (pp. 1-166) o autor se refere à biologia destas abelhas, trazendo informações completas sobre observações feitas em outras faunas.
- Toledo, A. de, Comportamento da vespa de Uganda em cafezal sombreado. — O Biológico, S. Paulo, vol. 14, 1948, pp. 189-191, 1 tab.
 Refere-se a *Prorops nasuta* Wat.
- Van Boven, J., Beschrijving van een ergatoide macropseudogyn van *Formica sanguinea*. — Nat. Maandblad, vol. 37, 1948, pp. 8-9, 2 figs.
- Weber, N. A., Lower Orinoco River fungus-growing ants (Hym. Formicidae, Attini). — Bol. Ent. Venezolana, Caracas, vol. 6, 1947, pp. 143-161, 2 pls.
- Observações em *Cyphomyrmex*, *Trachymyrmex*, *Acromyrmex* e *Atta*.
- Weber, N. A., Termite-eating *Pheidole* larvae (Hym. Formicidae). — Ent. News, Philadelphia, vol. 59, 1948, pp. 31-35.

Lepidoptera.

- Albert, M., Appareil pour le soufflage des chenilles. — L'Entomologiste, Paris, vol. 2, 1946, pp. 30-32, 3 figs.
- Araujo, R. L., Nota sobre a nomenclatura de *Neoleucinodes elegantalis*, a broca do tomate. — O Biológico, S. Paulo, vol. 14, 1948, p. 193.
- Avinoff, A. & Shoumatoff, N., An annotated list of the butterflies of Jamaica. — Ann. Carnegie Mus., Pittsburgh, vol. 30, 1946, pp. 263-295, 1 map.

- Bell, E. L., Corrections of errata in "A catalogue of the Hesperioidea of Venezuela". — Bol. Ent. Venezolana, Caracas, vol. 6, 1947, pp. 137-141.
- Bischoff, A., Das druesige Ventralorgan und die Druesen an den reduzierten Hinterbeinen in der alten Gattung *Acidalia* Tr. mit Bemerkungen zur Gattungssystematik. — Arch. Naturg., Leipzig, (n. s.) vol. B12, 1944, pp. 434-521, 40 figs.
- Bourquin, F., Notas sobre la metamorfosis de *Chloropteryx munda* (Warren 1897) (Lep. Geometridae). — Rev. Soc. Ent. Arg., B. Aires, vol. 14, 1948, pp. 137-140, 3 figs., 1 pl.
- Breyer, A., Los representantes argentinos de la familia Morphidae. — Physis, B. Aires, vol. 17, 1939, pp. 503-508.
- Breyer, A., Lepidopterologia argentina. Consideraciones zoogeográficas. — Physis, B. Aires, vol. 17, 1939, pp. 509-524, 1 map.
- Breyer, A., Los representantes argentinos de la familia Brassolidae. — Physis, B. Aires, vol. 17, 1939, pp. 495-502.
- Christensen, P. J. H., Serosa- und Amnionbildung der Lepidopteren. — Ent. Medd., Copenhagen, vol. 23, 1943, pp. 204-223, 5 pls., 1 fig.
- Comstock, W. P., A Saturniid from the Bahamas (Lep.). — Jour. N. York Ent. Soc. vol. 54, 1946, pp. 171-172.
- Comstock, W. P. & Huntington, E. I., Lycaenidae of the Antilles (Lep. Rhopalocera). — Ann. N. York Acad. Sci. vol. 45, 1943, pp. 49-130, 2 figs., 1 pl.
- Costa Lima, A. da, Insetos do Brasil, vol. 5. Lepidópteros. Iª Parte. — Escola Nac. Agron., Rio de Janeiro, Série Didática N. 7, 1945, 379 pp., 235 figs.
- Já fizemos uma apreciação mais detalhada de volumes anteriores desta obra importante (Rev. Ent. 10, 1939, p. 479; 14, 1943, p. 525). O presente volume se refere às superfamílias Micropterygoidea, Hepialoidea, Incurvaloidea, Nepticuloidea, Cossioidea, Castnioidea, Zygaenoidea, Tineoidea, Tortricoidea, Pterophoroidea. Uma vez completa, a obra será uma fonte valiosa para todos que queiram estudar a nossa fauna de insetos.
- Franz, E., Schmetterlings-Eier. — Natur u. Volk, Frankfurt a. M., vol. 71, 1941, pp. 262-267, 11 figs.
- Franz, E., Schmetterlings-Fuehler. — Natur u. Volk, Frankf. a. M., vol. 71, 1941, pp. 201-207, 19 figs.
- Freeman, H. A., Two new species of skippers from North and Central America (Lep. Hesperidae). — Ent. News, vol. 57, 1946, pp. 185-187, 2 figs.
- Freiberg, M. A., Contribución al conocimiento de la biología de *Alabama argillacea* (Huebner), oruga de la hoja, plaga del algodónero. — Inst. Sanid. Veg., B. Aires, (A) n. 9, 1945, 16 pp., 9 figs.
- Gallego, M., F. L., Catálogo de insectos determinados correspondientes a la orden Lepidoptera existentes en la sección de Entomología de la Facultad Nacional de Agronomía. Parte I. Diurnas, Rhopalocera o Achaniloptera. — Rev. Fac. Nac. Agron., Medellín, vol. 6, 1946, pp. 294-314.
- Gardner, J. C. M., On larvae of the Noctuidae (Lepidoptera). I, II. — Trans. R. Ent. Soc. London, 1946, vol. 96, pp. 61-72, 25 figs.; vol. 97, pp. 237-252, 28 figs.
- Gentil, K., Beitrage zur Kenntnis schillernder Schmetterlingsschuppen auf Grund polarisationsoptischer Untersuchung. — Zs. Morph. Oekol. Tiere, Berlin, vol. 37, 1941, pp. 591-612, 29 figs.
- Gentil, K., Elektronenmikroskopische Untersuchung des Feinbaues schillernder Leisten von *Morpho*-Schuppen. — Zs. Morph. Oekol. Tiere, Berlin, vol. 38, 1942, pp. 344-355, 11 figs.
- Hakman, W., Ueber Bau und Lage der Ozellen bei blattminierenden Schmetterlingsraupen. — Acta Zool. Fenn., Helsingfors, vol. 34, 1942, pp. 1-37, 48 figs., 2 pls.
- Hayward, K. J., Three new genera for Neotropical Hesperidae. — Acta Zool. Lilloana, Tucumán, vol. 5, 1948, pp. 97-102.
- Traz as descrições de *Mellana*, *Nyctelius* e *Evansiella*.

- Hayward, K. J., Nuevas especies de Hesperidos neotropicales. — Acta Zool. Lilloana, Tucumán, vol. 5, 1948, pp. 175-183, 4 figs.
- Espécies ou subespécies novas de *Ochlodes*, *Atrytone*, *Niconiades*, *Thespieus* e *Synale*.
- Hayward, K. J., Hesperioidea Argentina. XIX. — Acta Zool. Lilloana, Tucumán, vol. 5, 1948, pp. 103-112.
- Notas de distribuição geográfica e novos sinônimos.
- Hinton, H. E., On the homology and nomenclature of the setae of Lepidopterous larvae, with some notes on the phylogeny of the Lepidoptera. — Trans. R. Ent. Soc. London, vol. 97, 1946, pp. 1-37, 24 figs.
- Koehler, P., Especies nuevas de Satyridae y complemento a mi Prodomus. — Physis, B. Aires, vol. 17, 1939, pp. 443-447.
- Koehler, P., Contribuição al estudio de los Noctuidae argentinos. — Physis, B. Aires, vol. 17, 1939, pp. 449-455.
- Koehler, P., Notas sobre Psychidae argentinos (Lep. Het.). — Physis, B. Aires, vol. 17, 1939, pp. 457-471, 4 figs.
- Le Moult, E., Revision du genre *Helicopsis* (Lep. Erycinidae) (2e note). — Novit. Ent., Paris, vol. 10, 1940, pp. 97-140, 2 pls., 49 figs.
- Lichy, R., Nota sobre un Lepidoptero singular de Venezuela. *Copiopteryx semiramis* Cr. f. *banghaasi* Duft. (Lep. Het. Seturnioidea). — Bol. Soc. Venezol. Ci. Nat., Caracas, vol. 10, 1946, pp. 241-251, 2 pls.
- May, E., Notes on the Lepidopterous fauna of the northern region of the state of Espirito Santo, Brasil. — Physis, B. Aires, vol. 17, 1939, pp. 133-136.
- Mosebach, E., Von gesellig lebenden Schmetterlingsraupen. — Natur u. Volk, Frankf. a. M., vol. 69, 1939, pp. 494-501, 4 figs.
- Ribeiro, B. L., Contribuição para o conhecimento da bionomia de *Rothschildia aurota* (Cramer, 1775). (Lep. Saturnidae). — Rev. Bras. Biol., Rio de Janeiro, vol. 8, 1948, pp. 127-141, 4 figs.
- Toledo, A. A. de, Contribuição para o estudo da *Leucinodes elegantalis* Guén., praga do tomate. — O Biológico, S. Paulo, vol. 14, 1948, pp. 103-108.
- Travassos, L., Contribuição ao conhecimento dos Arctiidae. XV. Sobre o gênero *Bertholdia* Schaus, 1896. — Rev. Bras. Biol., Rio de Janeiro, vol. 8, 1948, pp. 341-360, 42 figs.

Diptera.

- Addis, C. J., Collection and preservation of sandflies (*Phlebotomus*) with keys to U. S. species (Dipt. Psychodidae). — Trans. Amer. Micr. Soc., Menasha, vol. 64, 1945, pp. 328-332, 1 pl.
- d'Aguilar, J., Aperçu sur les moeurs des Chloropidae (Dipt.). — L'Entomologiste, Paris, vol. 2, 1946, pp. 3-6.
- Albuquerque, D. de O., Sobre *Fannia obscurinervis* (Stein, 1900) Stein 1911 (Dipt. Muscidae). — Bol. Mus. Nac. Rio de Janeiro, (n. s.) Zool. n. 57, 1946, 9 pp., 14 figs.
- Alexander, C. P., New species of crane-flies from South America. Part XII (Dipt. Tipulidae). — Ann. Ent. Soc. Amer., Columbus, vol. 38, 1945, pp. 256-280.
- Alexander, C. P., New or little-known Tipulidae (Dipt.). LXXIV- (Dipt. Tipuloidea). — Ann. Ent. Soc. Amer., Columbus, vol. 39, 1946, pp. 119-139, 522-541.
- Alexander, C. P., New or little-known Tipulidae (Dipt.). LXXIV-LXXVI. — Ann. Mag. Nat. Hist., London (11) vol. 12 (1945) 1946, pp. 390-419, 579-609, 734-765.
- Contém espécies neotrópicas.
- Alexander, C. P., New or insufficiently-known crane-flies from Chile (Fam. Tipulidae, Dipt.). Part I. — Bol. Sanid. Veg. Chile, Santiago, vol. 3, 1943, pp. 117-135, 11 figs.
- Alexander, C. P., Records and descriptions of Neotropical crane-flies (Tipulidae, Dipt.). XXI. — Jour. New York Ent. Soc., vol. 54, 1946, pp. 293-307.

Alexander, C. P., New or little known Tipulidae from Venezuela (Dipt.). Part VII-IX. — Bol. Ent. Venezolana, Caracas, vol. 6, 1947, pp. 37-106, 13 figs.

Traz numerosas espécies novas.

d'Andretta, C., Jr. & Maria A. V., Espécies neotropicais da Família Simuliidae Schiner (Dipt. Nematocera). IV. *Lutziusimulium cruzi* Andr. & Andr. 1946, descrição do alótipo macho e da larva. — Arq. Zool. Est. S. Paulo, vol. 5, 1948, pp. 637-648, 38 figs.

d'Andretta, Maria A. V. & Carlos, Jr., Redescrição de *Gigantodax wrighti* (Vargas, Martínez & Dias, 1944) (Dipt. Simuliidae). — Papéis Avulsos Dep. Zool., S. Paulo, vol. 8, n. 2, 1947, pp. 23-37, 32 figs.

d'Andretta, Maria A. V. & Carlos, Jr., Espécies neotropicais da família Simuliidae Schiner (Dipt. Nematocera). III. *Simulium botulibranchium* Lutz, 1910 e *Simulium travassosi* n. sp. — Papéis Avulsos Dep. Zool., S. Paulo, vol. 8, n. 13, 1947, pp. 145-180, 125 figs.

d'Andretta, M. A. V. & C., As espécies neotropicais da família Simuliidae Schiner, 1864 (Dipt. Nematocera). I. — Mem. Inst. Osw. Cruz, Rio de Janeiro, vol. 43, 1945, pp. 85-152, 19 pls., 2 map.

Andrews, H. W., Some external aspects of the bodies of Diptera. — Proc. Trans. S. London Ent. Nat. Hist. Soc. 1945-46, 1946, pp. 58-63.

Andrews, H. W., A suggested nomenclature for the wingbands of certain Trypetidae (Dipt.), with some notes on their variation in British species. — Ent. Rec., London, vol. 58, 1946, pp. 75-78, 1 pl.

Barbosa, F. Simões, *Culicoides* (Dipt. Heleidae) da região neotropical. — An. Soc. Biol. Pernambuco, Recife, vol. 7, 1947, pp. 3-30, 9 pls.

Traz uma chave e 6 espécies novas.

Barnes, H. F., Gall midges of economic importance. Vol. I. Gall midges of root and vegetable crops (104 pp., 10 pls.). Vol. II. Gall midges of fodder crops (160 pp. 3 pls.). — London, Crosby Lockwood & Son Ltd., 1946.

Barretto, M. Pereira, Observações sobre a biologia do *Phlebotomus intermedius* Lutz e Neiva, 1912 (Dipt. Psychodidae) em condições experimentais. — An. Fac. Med. S. Paulo, vol. 16, 1940, pp. 143-157, 2 pls.

Barretto, M. Pereira, Morfologia dos ovos, larvas e pupas de alguns Flebótomos de São Paulo. — An. Fac. Medicina, S. Paulo, vol. 17, 1941, pp. 357-427, 52 pls.

Barretto, M. Pereira, Observações sobre a biologia, em condições naturais, dos Flebótomos do Estado de São Paulo (Dipt. Psychodidae). — Tese da Fac. de Medicina, S. Paulo, 1943, 162 pp., 10 gráficos, 21 tab.

Barretto, M. Pereira, Infecção do *Anopheles* (*N.*) *noroestensis* pelo *Plasmodium cathemerium*. — Acta Médica, Rio de J., vol. 11, 1943, 8 pp. (sep.), 2 figs.

Barretto, M. Pereira, Sobre o gênero *Culicoides* Latreille, 1809, com a descrição de três novas espécies (Dipt. Ceratopogonidae). — An. Fac. Med. Univ. S. Paulo, vol. 20, 1944, pp. 89-105, 15 figs., 4 pls. *C. coutinhoi*, *limai* e *lopesi*, n. spp.

Barretto, M. Pereira, Estudos sobre Tabanidas brasileiros. II. Sobre o gênero *Catachlorops* Lutz, 1909, com descrições de sete espécies novas (Dipt. Tabanidae). — An. Fac. Med. S. Paulo, vol. 22, 1946, pp. 151-183, 29 figs.

Traz uma chave e as descrições de *C. lanei*, *amazonensis*, *z'kani*, *nigriventer*, *leptogaster*, *fonsecai* e *carrerai* n. spp.

Barretto, M. Pereira, Estudos sobre Tabanidas brasileiros. I. Morfologia externa do *Tabanus* (*Poeciloderas*) *quadripunctatus* Fabr. (Dipt. Tabanidae). — An. Fac. Med. S. Paulo, vol. 22, 1946, pp. 113-149, 9 figs.

Barretto, M. Pereira, Uma nova espécie de Flebótomo da Colômbia e chave para a determinação das espécies afins (Dipt. Psychodidae).

- An. Fac. Med. S. Paulo, vol. 22, 1946, pp. 279-293, 16 figs.
F. carrerae n. sp.
- Barretto, M. Pereira, Uma nova espécie de flebótomo do vale amazônico e chave para determinação das espécies afins (Dipt. Psychodidae). — Papéis Avulsos Dep. Zool., S. Paulo, vol. 8, n. 20, 1947, pp. 239-247, 7 figs.
- F. pentacanthus* n. sp.
- Barretto, M. Pereira, Catálogo dos Flebôtomos americanos. — Arq. Zool. Est. S. Paulo, vol. 5, 1947, pp. 177-242.
- Barretto, M. Pereira & Coutinho, J. O., Sobre o gênero *Taeniorhynchus* Arribáizaga, 1891, com a descrição de três novas espécies do subgênero *Taeniorhynchus* (Dipt. Culicidae). — Arq. Hig. Saúde Publ. S. Paulo, vol. 9, 1944, pp. 51-86, 46 figs.
- Bequaert, J. C., Descriptions of three new Neotropical species of *Chrysops* (Dipt. Tabanidae). — Psyche, Cambridge, vol. 53, 1946, pp. 6-12, 1 pl.
- C. zayasi* (Cuba), *renjifo*, *weberi* (Colômbia).
- Berland, O. P., Notes on some carnivorous mosquito larvae. — Ent. News, Philadelphia, vol. 59, 1948, pp. 156-157.
- Blanchard, E. E., Los Sarcófágidos argentinos. Contribución a su conocimiento. — Physis, B. Aires, vol. 17, 1939, pp. 791-856, 19 figs.
- Bodenstein, D., The corpora allata of mosquitoes. Rep. Connecticut State Ent., New Haven, vol. 44 (1944) 1945, pp. 396-405, 3 figs.
- Bodenstein, G., Die Auslösung von Modifikationen und Mutationen bei *Musca domestica*. — Arch. EntwMech. Org., Berlin, vol. 140, 1940, pp. 614-655, 24 figs.
- Bouvier, G., Malformations chez les Tabanidés. — Mitt. Schweiz. Ent. Ges., Berna, vol. 19, 1946, pp. 692-694, 4 figs.
- Briceño-Iragorri, L., Nota acerca de *Culicoides* (Dipt. Ceratopogonidae). Descripción de una especie nueva para el país. — Bol. Lab. Clin. "Luis Razetti", Caracas, vol. 14, 1946, pp. 397-399.
- Burgess, R. W., Pigmentation as a specific character in certain Anopheline pupae. — J. Nat. Malar. Soc., Columbia, S. C., vol. 5, 1946, pp. 189-191, 2 figs.
- Buzzati-Traverso, A., Genetica di popolazioni in *Drosophila*. I-III. — Sci. Genetica, Turim, vol. 2, 1942, pp. 190-223, 11 figs., 224-241, 4 figs., 242-251.
- Buzzati-Traverso, A. & Cavalli, L. L., Genetica di popolazioni in *Drosophila*. IV. Fenotipica costituzione genetica di una popolazione di *Drosophila melanogaster*. — Mem. Ist. Ital. Idrobiol., Milano, vol. 2, 1945, pp. 217-251.
- Callot, J., Les papilles anales des larves de Culicidae dans les conditions naturelles et expérimentales. — Bull. Soc. Path. Exot., Paris, vol. 39, 1946, pp. 201-206.
- Carrera, M., Segunda relação de alguns Asilidae (Diptera) e suas presas, com a descrição prévia de duas novas espécies. — Papéis Avulsos Dep. Zool., S. Paulo, vol. 8, n. 23, 1947, pp. 265-271.
- Causey, O. R., Deane, L. M. & M. P., Studies on Brazilian Anophelines from the north east and Amazon regions. II. An illustrated key by male genital characteristics for the identifications of thirty-four species of Anophelini, with a note on dissection technique. — Amer. J. Hyg., Baltimore, Monogr. Ser. n. 18, 1946, pp. 21-31, 6 pls.
- Causey, O. R., Deane, L. M. & M. P., Description of *Chagasia rozeboomi*, an Anopheline from Ceará, Brazil. — J. Nat. Malar. Soc. Talahassee, vol. 4, 1945, pp. 341-350, 3 pls.
- Chang, H. T., Studies on the use of fluorescent dyes for marking *Anopheles quadrimaculatus* Say. Mosq. News, N. York, vol. 6, 1946, pp. 122-125.
- Coradetti, A., Sull'introduzione di metodi genetici per la determinazione delle specie negli Anofelini. — Riv. Parassit., Roma, vol. 7, 1943, pp. 43-48.
- Coradetti, A. & Lupascu, G., Studi sull'ipopigio maschile dei Nycteribiidae. — Riv. Parassit., Roma, vol. 5, 1941, pp. 85-99, 9 figs.

- Corrêa, R. R., Sobre alguns Anisopódidas da América do Sul. Descrição de *Carreraia* n. g. (Dipt. Anisopodidae). — Papéis Avulsos Dep. Zool., S. Paulo, vol. 8, n. 8, 1947, pp. 97-107, 11 figs.
- O tipo do novo gênero é *Olbiogaster edwardsi* Carrera, 1941.
- Coutinho, J. O. & Barretto, M. Pereira, Contribuição para o conhecimento dos Phlebotomos de São Paulo. I. *Phlebotomus fischeri* Pinto, 1926 e *Phlebotomus pessoai* n. sp. (Dipt. Psychodidae). — Arq. Higiene e Saúde Pública, S. Paulo, vol. 6, 1941, pp. 31-48, 29 figs.
- Coutinho, J. O. & Barretto, M. Pereira, Contribuição para o conhecimento dos Flebótomos de São Paulo. III. Descrição do macho de *Phlebotomus alphabeticus* Fonseca, 1936 e de *Phlebotomus pascalei* n. sp. (Dipt. Psychodidae). — An. Fac. Med. Univ. S. Paulo, vol. 16, 1940, pp. 193-206, 10 figs., 1 pl.
- Cova-García, P., Notas sobre los Anofelinos de Venezuela y su identificación. — Conf. Sanit. Panamer., Caracas, vol. 12, 1946, n. 1, 208 pp., 9 pls., 3 tab.
- Cova-García, P., Distribución geográfica y datos bionómicos de *A. albimanus*, uno de los principales vectores de la malaria en Venezuela. — Arch. Venez. Pat. Trop. Parasit. Médica, Caracas, vol. 1, 1948, pp. 73-85, 1 mapa, 2 tab.
- Damasceno, R. G., Causey, O. R. & Arouck, R., Estudos sobre *Flebotomus* do vale amazônico. Parte V. Descrição de *F. williamsi*, *F. deanei*, *F. carvalhoi*, *F. lopesi*, *F. castanheirai*, *F. fariasi*, *F. baityi* e *F. campbelli* (Dipt. Psychodidae). — Mem. Inst. Osw. Cruz, Rio de Janeiro, vol. 43, 1945, pp. 1-30, 47 figs.
- Deane, L. M., Causey, O. R. & Deane, M. P., Studies on Brazilian Anophelines from the northeast and Amazon regions. I. An illustrated key by adult female characteristics for the identification of thirty-five species of Anophelini, with notes on the malaria vectors (Dipt. Culicidae). — Amer. J. Hyg., Baltimore, Monogr. Ser. m. 18, 1946, pp. 1-18, 6 pls.
- Deane, M. P., Causey, O. R. & Deane, L. M., Studies on Brazilian Anophelines from the northeast and Amazon regions. III. An illustrated key by larval characteristics for the identification of thirty-two species of Anophelini from the northeast and Amazon regions of Brazil, with descriptions of two larvae. — Amer. J. Hyg., Baltimore, Monogr. Ser. n. 18, 1946, pp. 35-50, 8 pls.
- Del Ponte, E., Revisión de los Oestridae argentinos. — Physis, B. Aires, vol. 17, 1939, pp. 525-534.
- Del Ponte, E. & Heredia, R. L., *Anopheles (Anopheles) holmbergi* n. sp. de Misiones (Argentina) (Dipt. Culicidae). — Rev. Soc. Ent. Arg., B. Aires, vol. 12, 1945, pp. 382-386, 2 figs.
- Del Vecchio, G., Cella per l'osservazione di ninfe viventi di Anofelini. — Riv. Parassit., Roma, vol. 4, 1940, pp. 131-132, 1 fig.
- Dennell, R., A study of an insect cuticle: the larval cuticle of *Sarcophaga falcata* Pand. (Dipt.). — Proc. Roy. Soc. London (B) vol. 133, 1946, pp. 348-373, 4 figs., 1 pl.
- Fairchild, G. B. & Hertig, M., Notes on the *Phlebotomus* of Panama (Dipt. Psychodidae). I. The subgenus *Bumptomys* Franca and Parrot 1921. — Ann. Ent. Soc. Amer., Columbus, vol. 40, 1947, pp. 610-616, 6 figs.
- Traz as descrições de *Ph. (B.) hamatus* e *galindoi* n. spp., e uma chave para os machos do subgênero.
- Fairchild, G. B. & Hertig, M., Notes on the *Phlebotomus* of Panama (Dipt. Psychodidae). II. Descriptions of three new species. — Ann. Ent. Soc. Amer., Columbus, vol. 40, 1947, pp. 617-623, 1 tab., 3 pls.
- Traz as descrições de *Ph. vespertilionis*, *vesiciferus* e *deleoni*.
- Ferreira, M. G., Combate específico ao vetor de malaria, em zona de transmissão por anofelinos do subgênero *Kerteszia*. — Resumos de Malariologia, vol. 1, 1948, 8 pp. (sep.), 1 gráf.

- Floch, H. & Abonnenc, E., Sur la validité des espèces *A. ininii* et *A. sancti-elii* Senevet et Abonnenc, 1938. — Publ. Inst. Pasteur Guyane, Cayenne, n. 124, 1946, 4 pp., 1 fig.
- Floch, H. & Abonnenc, E., Distribution des phlébotomes en Guyane Française. — Publ. Inst. Pasteur Guyane, Cayenne, n. 142, 1946, 7 pp., 1 map.
- Floch, H. & Abonnenc, E., Description de *Culex* nouveaux de la Guyane Française. I-IV. — Publ. Inst. Pasteur Guyane, Cayenne, 1945, n. 112, 6 pp., 2 figs.; n. 114, 5 pp., 2 figs.; 1946, n. 120, 4 pp., 2 figs.; n. 122, 3 pp., 1 fig.
- Floch, H. & Abonnenc, E., Sur *A. nunez-tovari* et *A. pessoai* en Guyane Française. Table d'identification des *Nyssorhynchus guyanais*. — Publ. Inst. Pasteur Guyane, Cayenne, n. 126, 1946, 5 pp.
- Floch, H. & Abonnenc, E., Simulidés de la Guadeloupe: *S. antillarum* Jennings et *S. tarsale* Williston. — Publ. Inst. Pasteur Guyane, Cayenne, n. 130, 1946, 5 pp., 2 figs.
- Floch, H. & Abonnenc, E., Phlébotomes de la Guyane Française (XVII). *P. maripaensis* n. sp. et *P. sp.* de Maripa. — Publ. Inst. Pasteur Guyane, Cayenne, n. 140, 1946, 6 pp., 2 figs.
- Folger, H. T., The reactions of *Culex* larvae and pupae to gravity, light and mechanical shock. — Physiol. Zool., Chicago, vol. 19, 1946, pp. 190-202.
- Fox, I., A review of the species of biting midges or *Culicoides* from the Caribbean region (Dipt. Ceratopogonidae). — Ann. Ent. Soc. Amer., Columbus, vol. 39, 1946, pp. 248-258, 1 pl.
- Fraga, G., A., El género *Listrioscia* de la subfamilia Pangoniinae. — Physis, B. Aires, vol. 17, 1939, pp. 149-155, 1 fig.
- Frey, R., Entwurf einer neuen Klassifikation der Mueckenfamilie Sciaridae (Lycoriidae). — Notul. Ent., Helsinki, vol. 22, 1942, pp. 5-44, 12 figs.
- Galvão, A. L. Ayroza & Damasceno, R. G., Observações sobre Anofelinos do complexo *albitarsis* (Dipt. Culicidae). — An. Fac. Med. Univ. S. Paulo, vol. 20, 1944, pp. 73-87, 1 pl.
- Geijskes, D. C., Notes on the Neotropical Anophelinae in Moengo, Surinam. — Mosq. News, N. York, vol. 6, 1946, pp. 113-118, 1 fig.
- Hennig, W., Uebersicht ueber die bisher bekannten Metamorphosestadien der Ephydriden, mit Neubeschreibungen nach dem Material der Deutschen Limnologischen Sundaexpedition (Dipt. Ephydridae). — Arb. morph. tax. Ent., Berlin-Dahlem, vol. 10, 1943, pp. 105-144, 18 figs., 2 pls.
- Henriksen, K. L., A note upon two South American species of warble-flies (*Cuterebra apicalis* Guér. and *schmalzi* Lutz), parasites of rodents. — Ent. Medd., Copenhagen, vol. 22, 1942, pp. 284-289, 5 figs.
- Hertig, M., A new genus of bloodsucking Psychodids from Peru (Dipt. Psychodidae). — Ann. Ent. Soc. Amer., Columbus, vol. 41, 1948, pp. 8-16, 13 figs.
- Warileya phlebotomanica*, n. g. n. sp.
- Hill, R. B. & C. M., *Phoniomyia hirsuta*, a new Sabethine from Jamaica (Dipt. Culicidae). — Proc. Ent. Soc. Washington, vol. 48, 1946, pp. 39-41, 236, 1 pl.
- Hinton, H. E., The physical forces involved in somatic pairing in the Diptera. — J. Exp. Zool., Philadelphia, vol. 102, 1946, pp. 237-245, 3 pls.
- Houard, C., Les collections cécidologiques du Laboratoire d'Entomologie du Muséum d'Histoire Naturelle de Paris: Galles des États-Unis et du Mexique. — Ann. Soc. Ent. Fr., Paris, vol. 112, (1943) 1946, pp. 1-66, 332 figs.
- Hovanitz, W., Comparisons of mating behaviour, growth rate, and factors influencing egg-hatching in South American *Haemagogus* mosquitoes. — Physiol. Zool., Chicago, vol. 19, 1946, pp. 35-53, 5 figs.
- Hull, F. M., The genus *Lepidostola* Mik. — Amer. Mus. Novit., N. York, n. 1326, 1946, 15 pp., 36 figs.

Revisão das espécies neotrópicas, com três espécies novas.

- Iriarte, D. R., La familia Simuliidae en Venezuela. — Bol. Lab. Clin. Luis Razetti, Caracas, 1946, vol. 14, pp. 333-347, 7 figs.; vol. 15, pp. 401-482, 9 figs., 5 pls., 2 map.
- Kumm, H. W., Osorno-Mesa, E. & Boshell-Manrique, J., Studies on mosquitoes of the genus *Haemagogus* in Colombia (Dipt. Culicidae). — Amer. J. Hyg., Lancaster, vol. 43, 1946, pp. 13-28, 6 pls. (1 col.), 1 map.
- Lane, J., Novos Ceratopogonídeos do Brasil (Dipt. Ceratopogonidae). — Arq. Fac. Hig., S. Paulo, vol. 1, 1947, pp. 225-239, 4 pls.
- Espécies novas dos gêneros *Monohalea*, *Echinohelea*, *Macropheza*, *Stenoxenus*, *Clinohalea*, *Dicrobezzia* e *Bezzia*.
- Lane, J., A biologia e taxonomia de algumas espécies dos grupos *Forcipomyia* e *Culicoides* (Dipt. Ceratopogonidae). — Arq. Fac. Higiene, S. Paulo, vol. 1, 1947, pp. 159-170, 2 pls.
- Lane, J., Mycetophilidae do Brasil (Dipt. Nemocera). — Rev. Bras. Biol., Rio de Janeiro, vol. 8, 1948, pp. 247-254, 15 figs.
- Traz 4 espécies novas de *Manota*, *Nervijuncta* e *Eudicrania*.
- Lane, J. & Neghme, A., Sobre el *Anopheles* (*Nyssorhynchus*) *pictipennis* Philippi, 1865. — Biológica, Santiago, Fasc. 4, 1946, pp. 83-93, 5 figs.
- Lenz, F., Das Atemorgan der Chironomidenpuppen. — Rev. Biol. Firenze, vol. 33, 1942, pp. 232-243, 33 figs.
- León, J. R. de, Apuntes para una monografía sobre los Simúlidos de Guatemala. Sobre la ecología de un nuevo grupo de especies de Simúlidos. — Guatemala, 1946, 11 pp., 14 figs.
- Lindner, E., Suedchilenische Stratiomyiiden (Dipt.). — Ann. Naturh. Mus. Wien, vol. 53 (1942) 1944, Teil 2, pp. 89-100.
- Lopes, H. de Sousa, Sarcophagidae do México capturados pelo Prof. Dampf. 2ª Nota. (Dipt.). — Mem. Inst. Oswaldo Cruz, Rio de Janeiro, vol. 45, 1947, pp. 545-570, 18 figs.
- Traz as descrições de *Emdeningia spinosa* e *Sarconeiva affinis* n. spp.
- Marciano, A. Gómez, Infección oocística natural de los anofelinos de Venezuela. Estado actual de las investigaciones. — Arch. Venezol. Pat. Trop. Parasit. Médica, Caracas, vol. 1, 1948, pp. 86-92.
- Mattingly, P. F., A technique for feeding adult mosquitoes. — Nature, London, vol. 158, 1946, p. 751, 1 fig.
- Meijere, J. C. H. de, Die Larven der Agromyzinen. Achter Nachtrag. — Tijdschr. Ent., Amsterdam, vol. 87 (1944) 1946, pp. 65-74, 22 figs.
- Nájera, L., Método nuevo para el transporte de larvas de Culicidos. — Bol. Soc. Esp. Hist. Nat., Madrid, vol. 42, 1944, pp. 471-476.
- Pinotti, M. & Rachou, R. G., Da formação de técnicos-entomologistas especializados para o Serviço Nacional de Malária. — Resumos de Malariologia, vol. 1, 1948, 8 pp. (sep.).
- Rachou, R. G., Encontro da *Chagasia rozeboomi* Causey, Deane & Deane, 1944, no Estado de São Paulo. — Resumos de Malariologia, vol. 1, 1948, 4 pp. (sep.).

Hemiptera.

- Allard, H. A., Synchronous singing of 17-year cicadas. — Proc. Ent. Soc. Wash., vol. 48, 1946, pp. 93-95.
- Barber, H. G. & Bruner, S. C., Records and descriptions of miscellaneous Cuban Hemiptera. — Bull. Brookl. Ent. Soc., Lancaster, vol. 41, 1946, pp. 52-61, 5 figs.
- Doldina cubana* n. sp. (Reduviidae), *Camptomma cardini* n. sp. (Miridae), etc.
- Beament, J. W. L., The waterproofing process in eggs of *Rhodnius prolixus* Stal. — Proc. Roy. Soc., London (B), vol. 133, 1946, pp. 407-418, 2 figs.
- Beament, J. W. L., The formation and structure of the chorion of the egg in an Hemipteran, *Rhodnius prolixus*. — Quart. J. Micr. Sci., London, (n. s.) vol. 87, 1946, pp. 393-439, 13 figs.

- Blanchard, E. E., Estudio sistemático de los Afidoideos argentinos. — Physis, B. Aires, vol. 17, 1939, pp. 857-1003, 21 figs.
- Caldwell, J. S., Notes on *Haplaxius* Fowler with descriptions of new species (Hom. Cixiidae). — Proc. Ent. Soc. Wash., vol. 48, 1946, pp. 203-206, 1 pl.
- H. pallidus* (Florida), *serratus* (México) e *simplicatus* (El Salvador).
- Camacho, A. A., El periquito del aguacate. — Fitófilo, México, vol. 3, 1944, pp. 3-54, 8 figs., 1 gráf.
- Carayon, J., Sur les organes génitaux mâles des Réduviidés. — Bull. Soc. Zool. France, Paris, vol. 69 (1944) 1945, pp. 219-224, 7 figs.
- Carayon, J., Les éléments bacilliformes sécrétés par les glandes génitales annexes de certains Hémiptères (note préliminaire). — Bull. Soc. Zool. France, Paris, vol. 70, 1945, pp. 11-14, 3 figs.
- Carayon, J., Pénétration et dispersion des spermatozoides dans l'organisme des femelles de certains Hémiptères. — C. R. Acad. Sci., Paris, vol. 222, 1946, pp. 107-109.
- Carvalho, J. C. M., Mirídeos neotropicais. XXXIV: Descrição de uma espécie nova de *Falconia* Distant e algumas correções sinonímicas (Hem.). — Rev. Bras. Biol., Rio de Janeiro, vol. 8, 1948, pp. 189-192, 4 figs.
- F. tupiana* n. sp. (Teresópolis, Brasil).
- Carvalho, J. C. M., Sobre a biologia do *Ornithocoris toledo* Pinto, 1927, percevejo dos galinheiros em Minas Gerais (Hem. Cimicidae). — Ceres, Minas Gerais, vol. 2, 1939, pp. 128-140, 5 figs.
- China, W. E., New Cryptostemmatidae (Hem.) from Trinidad, British West Indies. — Proc. R. Ent. Soc. London (B) vol. 15, 1946, pp. 148-154, 5 figs.
- Espécies novas de *Cryptostemma*, *Ptenidiophyes* e *Schizoptera*.
- China, W. E., A new species of the genus *Arachnocoris* Scott, with a key to the known species of the genus (Hem. Nabidae). — Ann. Mag. Nat. Hist., London (11) vol. 13, 1946, pp. 119-122, 1 fig.
- A. myersi* n. sp. (Brasil).
- Costa Lima, A. da, Hathaway, C. R. & Seabra, C. A. C., Sobre algumas espécies de Apiomerinae representadas nas nossas coleções (Hem. Reduviidae: Apiomerinae). — Mem. Inst. Osw. Cruz, Rio de Janeiro, vol. 45, 1947, pp. 761-772, 14 figs.
- Traz a descrição de *Paramanicocoris rubroniger* n. g. n. sp. (Amazonas).
- De Carlo, J. A., Los Ranatridae de Sud América (Hemiptera). — An. Mus. Argent. Ci. Nat., B. Aires, vol. 42, 1946, pp. 1-38, 1 fig., 7 pls.
- De Long, D. M., The Mexican species of *Idiodonus* (Hom. Cicadellidae). — Ohio J. Sci., Columbus, vol. 46, 1946, pp. 13-30, 3 pls.
- De Long, D. M., The genus *Tinobregmus* (Hom. Cicadellidae) in Mexico. — Bull. Brookl. Ent. Soc., vol. 40, (1945) 1946, pp. 97-102, 1 pl.
- De Long, D. M., A new genus (*Excavanus*) and species of Mexican leafhoppers related to *Acunasus* (Hom. Cicadellidae). — An. Ent. Soc. Amer., Columbus, vol. 39, 1946, pp. 446-447, 4 figs.
- De Long, D. M., A new genus (*Costamia*) and species of Mexican leafhopper (Hom. Cicadellidae). — An. Ent. Soc. Amer., Columbus, vol. 39, 1946, pp. 82-83, 1 pl.
- De Long, D. M., A new genus and species of South American leafhoppers belonging to a new tribe of the Jassinae. — Ann. Ent. Soc. Amer., Columbus, vol. 38, 1945, pp. 414-416, 3 figs.
- Sandersellus carinatus* n. g. n. sp. (Bolivia).
- De Long, D. M., A new genus (*Acunasus*) and eight new species of Mexican leafhoppers (Hom. Cicadellidae). — Ann. Ent. Soc. Amer., Columbus, vol. 38, 1945, pp. 199-206, 2 pls.
- Drake, C. J. & Harris, H. M., A new Mesoveliid from Ecuador (Hem. Mesoveliidae). — Bull. Brookl. Ent. Soc., vol. 41, 1946, pp. 8-9.
- M. hambletoni* n. sp.

- Drake, C. J. & Poor, M. E., Some Tingitidae from the Republic of Argentina. (Hem.). — *Physis*, B. Aires, vol. 17, 1939, pp. 95-98, 1 fig.
- Drake, C. J. & Poor, M. E., Some new Tingitidae (Hem.) from Argentina. — *An. Mus. Argent. Ci. Nat.*, B. Aires, vol. 40, 1942, pp. 299-302.
- Ferris, G. F., Information concerning the genera *Chortinaspis* and *Aspidiotus* (Hom. Coccoidea: Diaspididae). — *Microentomology*, Stanford Univ., vol. 11, 1946, pp. 37-49, 5 figs.
- Hathaway, C. R., Nota sobre os hábitos de ploiarídeo (Hem. Ploiaridae). — *Mem. Inst. Osw. Cruz*, Rio de Janeiro, vol. 44, 1946, pp. 193-194.
- Hsiao, Tsai-yu, The genus *Neella* Reuter, with descriptions of four new species (Hem. Miridae). — *J. Wash. Acad. Sci.*, vol. 36, 1946, pp. 385-387.
- Espécies novas do Panamá e do Peru.
- Kormilev, N. A., Una especie nueva de la familia Elasmodemidae Let. & Serv. (1896) de la Republica Argentina (Hem.-Het. Reduvidae). — *Rev. Soc. Ent. Arg.*, B. Aires, vol. 14, 1948, pp. 141-147, 2 figs.
- Elasmodemata bosqi* n. sp.
- Laschat, F., Die embryonale und postembryonale Entwicklung der Netzaugen und Ocellen von *Rhodnius prolixus*. — *Zs. Morph. Oekol. Tiere*, Berlin, vol. 40, 1944, pp. 314-347, 26 figs.
- Lent, H., O gênero *Rhodnius* Stal, 1859 (Hem. Reduviidae). — *Rev. Bras. Biol.*, Rio de Janeiro, vol. 8, 1948, pp. 297-339, 47 figs.
- Traz uma chave e a redescricao de 7 espécies.
- Lent, H. & Wygodzinsky, P., Contribuição ao conhecimento do gênero *Zelus* Hahn (*Spiniger* auct.) (Hem. Reduviidae). — *Mem. Inst. Osw. Cruz*, Rio de Janeiro, vol. 43 (1945). 1946, pp. 205-269, 93 figs.
- Traz 8 espécies e 2 subespécies novas.
- Lent, H. & Wygodzinsky, P., On two new genera of American Reduviinae, with a key and notes on others (Reduviidae, Hem.). — *Rev. Brasil. Biol.*, Rio de Janeiro, vol. 8, 1948, pp. 43-55, 54 figs.
- Corupaia brasiliensis* n. g. n. sp. e *Zeluroides mexicanus* n. g. n. sp.
- Mahdihassan, S., An insect tumour and ovarian hormone. — *Curr. Sci. (Bombay?)*, 1948, p. 184.
- Refere-se a *Fulgora europaea*.
- Melis, A., Contributo alla conoscenza dell'*Aspidiotus perniciosus* Comst. — *Redia*, Firenze, vol. 29, 1943, pp. 1-170, 21 figs., 10 pls.
- Mendes, L. O. T., Sobre a meiose de *Dysdercus mendesi* Bloete, 1937 (Hem. Pyrrhocoridae). — *Bragantia*, Campinas, vol. 7, 1947, pp. 243-256, 5 pls.
- Metcalf, Z. P., General catalogue of the Hemiptera. Fasc. IV. Fulgoroidea. Part 8. Dictyopharidae. — Northampton, Mass., Smith College, 1946, 246 pp.
- Metcalf, Z. P., A new genus of Lophopidae from Brazil (Hom.). — *Proc. Ent. Soc. Wash.*, vol. 49, 1947, pp. 238-240, 9 figs.
- Sivanana omani* n. g. n. sp. (Água Preta, Bahia).
- Monte, O., Notas sobre alguns Pentatomídeos. — *Rev. Agric.*, S. Paulo, vol. 20, 1945, pp. 269-273.
- Monte, O., Notas sinonímicas. — *Papéis Avulsos Dep. Zool.*, S. Paulo, vol. 8, n. 19, 1947, pp. 231-237, 5 figs.
- Refere-se a *Gargaphia inca* Monte, *Corythaica passiflorae* (Berg), etc. (Hem. Tingidae).
- Monte, O., Gêneros e genótipos dos Tingídeos do mundo. — *Papéis Avulsos Dep. Zool.*, S. Paulo, vol. 8, n. 1, 1947, pp. 1-22.
- Müller, H. J., Ueber Bau und Funktion des Legeapparates der Zikaden (Hom. Cicadina). — *Zs. Morph. Oekol. Tiere*, Berlin, vol. 38, 1942, pp. 534-629, 53 figs.
- Potes, A., Figueroa, Catalogación inicial de las cochinillas del Valle del Cauca (Hom. Coccoidea). — *Rev. Fac. Nac. Agron.*, Medellín, vol. 6, 1946, pp. 196-220.

Toledo Piza, Jor., S. de, Comportamento dos chromossomos sexuais do *Dysdercus mendesi* na segunda divisão dos espermátocitos. — *Bragantia*, Campinas, vol. 7, 1947, pp. 269-271.

Wygodzinsky, P., On some Reduviidae belonging to the Naturhistorisches Museum at Vienna (Hem.). — *Rev. Bras. Biol.*, Rio de Janeiro, vol. 8, 1948, pp. 209-224, 54 figs.

Contém a descrição de *Pnironthis beieri* n. sp. (Rio Grande do Sul).
Wygodzinsky, P., On two new genera of Schizopterinae (Cryptostemmatidae) from the Neotropical region (Hem.). — *Rev. Bras. Biol.*, Rio de Janeiro, vol. 8, 1948, pp. 143-155, 54 figs.

Neuroptera.

Banks, N., A review of the Chrysopidae (Nothochrysidae) of Central America. — *Psyche*, Cambridge, Mass., vol. 52 (1945) 1946, pp. 139-174.

Bock, E., Wechselbeziehungen zwischen den Keimblättern bei der Organbildung von *Chrysopa perla* (L.). I. Die Entwicklung des Ektoderms in mesodermdefekten Keimteilen. — *Arch. EntMech. Org.*, Berlin, vol. 141, 1941, pp. 159-247, 33 figs.

Clancy, D. W., The insect parasites of the Chrysopidae (Neur.). — *Univ. Calif. Publ. Ent.*, Berkeley, vol. 7, 1946, pp. 403-496, 40 figs.

Cowley, J., Killington, F. J., Kimmins, D. E. & Longfield, C. E., Proposed suspension of the "Règles" for *Hemerobius* Linnaeus, 1758, and *Chrysopa* Leach, 1815 (Ins. Neur.). — *Bull. Zool. Nomencl.*, London, vol. 1, 1946, pp. 188-191.

Gregorio, J. & Williner, G. J., Ascaláfidos argentinos. — *Rev. Soc. Ent. Arg.*, B. Aires, vol. 12, 1945, pp. 425-437, 2 pls.

Siphonaptera.

Augustson, G. F., Further report on a chigoe-like flea from California, with a discussion of the true chigoe, *Tunga penetrans* (Linn.). — *Bull. S. Calif. Acad. Sci.*, Los Angeles, vol. 43 (1944) 1945, pp. 119-121, 1 pl.

Costa Lima, A. da & Hathaway, C. R., Pulgas. Bibliografia, catálogo e animais por elas sugados. — *Mon. Inst. Oswaldo Cruz*, Rio de Janeiro, N. 4, Dez. 1946, 522 pp.

Este trabalho importante abrange a fauna mundial e será por muito tempo a base para uma orientação segura no labirinto da bibliografia das pulgas.

Del Ponte, E. & Riesel, M. A., Notas sobre Siphonaptera argentinos. II. Primera lista de especies. — *Physis*, B. Aires, vol. 17, 1939, pp. 543-551.

Fox, I. & Anduze, P. J., A new bird flea from Venezuela (*Avesopsylla venezuelensis*, new genus and species). — *Bol. Ent. Venezolana*, Caracas, vol. 6, 1947, pp. 107-110, 3 figs.

Guimarães, L. R., Duas novas espécies de *Polygenis* Jordan, 1939 (Pulicidae, Suctoria). — *Papéis Avulsos Dep. Zool.*, S. Paulo, vol. 8, n. 15, 1947, pp. 189-195, 2 figs.

P. dentei e *atra* n. spp.

Linduska, J. P. & Cochran, J. H., A laboratory method of flea culture. — *J. Econ. Ent.*, Menasha, vol. 39, 1946, pp. 544-545.

Mallophaga, Anoplura.

Busvine, J. R., On the pigmentation of the body louse *Pediculus humanus* L. — *Proc. R. Ent. Soc.*, London (A) vol. 21, 1946, pp. 98-103, 4 figs.

Carriker, Jr., M. A., Neotropical Mallophaga Miscellany N° 2. The genus *Ibidoecus* Cummings. — *Bol. Ent. Venezolana*, Caracas, vol. 6, 1947, pp. 111-136, 25 figs.

Descrições de *I. ajajus*, *phimosus*, *plegadii*, *heterogenitalis* n. spp. e *sclolopaceus caraii* n. subsp.

- Eichler, W., Die wirtschaftliche Bedeutung der Mallophagen (Haarlinge und Federlinge). — Anz. Schaedlingsk., Berlin, vol. 16, 1940, pp. 32-35, 1 fig.
- Eichler, W., Wirtsspezifitaet und stammesgeschichtliche Gleichlaeufigkeit (Fahrenholzsche Regel) bei Parasiten im allgemeinen und bei Mallophagen im besonderen. — Zool. Anz., Leipzig, vol. 132, 1940, pp. 254-262.
- Eichler, W., Zur Klassifikation der Lauskerfe (Phthiraptera Haeckel: Rhynchophthirina, Mallophaga und Anoplura). — Arch. Naturgesch., Leipzig (n. s.) vol. B10, 1941, pp. 345-398, 37 figs.
- Eichler, W., Die Entfaltungsregel und andere Gesetzmæssigkeiten in den parasitogenetischen Beziehungen der Mallophagen und anderer staendiger Parasiten zu ihren Wirten. — Zool. Anz., Leipzig, vol. 137, 1942, pp. 77-83.
- Guimarães, L. R., Notas sobre *Microctenia* (Menoponidae, Mallophaga) e descrição de uma nova subespécie. — Papéis Avulsos Dep. Zool., S. Paulo, vol. 8, n. 16, 1947, pp. 197-202.
- M. tibialis heterocephala* n. subsp.
- Guimarães, L. R., Pequenas notas sobre Malófagos. I. — Papéis Avulsos Dep. Zool., S. Paulo, vol. 8, n. 22, 1947, pp. 261-263.
- Werneck, F. L., *Neohaematopinus longus* n. sp. (Anoplura, Haematopidae). — Rev. Bras. Biol., Rio de Janeiro, vol. 8, 1948, pp. 173-175, 4 figs.

Isoptera.

- Blizdorp, P. A., Do certain termite queens migrate? — Ent. Meded. Ned.-Ind., Buitenzorg, vol. 7, 1941, pp. 49-52, 2 figs.
- Costa Lima, A. da, Sobre dois fosséis da bacia terciária de Fonseca (Alvinópolis, Minas Gerais). — An. Acad. Bras. Ci., Rio de Janeiro, vol. 16, 1944, pp. 291-292, 1 pl.
- Dropkin, V. H., The use of mixed colonies of termites in the study of host-symbiont relations. — Jour. Parasit., Lancaster, vol. 32, 1946, pp. 247-251.
- Goetsch, W., Darm-Symbionten als Eiweissquelle und Vitaminspender. — Oesterr. Zool. Zs., Vienna, vol. 1, 1946, pp. 58-86.
- Goetsch, W., Wie entsteht ein Termiten-Staat? — Natur und Volk, Frankfurt a. M., vol. 72, 1942, pp. 3-10, 12 figs.
- Grassé, P. P. & Joly, P., La teneur en matières organiques de quelques terres de termitières. — Bull. Soc. Zool. Fr., Paris, vol. 66, 1941, pp. 57-62.
- Grassé, P. P. & Noiret, C., Le polymorphisme social du termite à cou jaune (*Calotermes flavicollis* F.). La production des soldats. — C. R. Acad. Sci., Paris, vol. 223, 1946, pp. 929-931.
- Light, S. F., Parthenogenesis in termites of the genus *Zootermopsis*. — Univ. Calif. Publ. Zool., Berkeley, vol. 43, 1944, pp. 405-412.
- Light, S. F., Experimental studies on ectohormonal control of the development of supplementary reproductives in the termite genus *Zootermopsis* (formerly *Termopsis*). — Univ. Calif. Publ. Zool., Berkeley, vol. 43, 1944, pp. 413-454.
- Light, S. F. & Illig, P. L., Rate and extent of development of neotenic reproductives in groups of nymphs of the termite genus *Zootermopsis*. — Univ. Calif. Publ. Zool., Berkeley, vol. 54, 1945, pp. 1-40, 16 figs.

Plecoptera.

- Hanson, J. F., Comparative morphology and taxonomy of the Capniidae (Plecoptera). — Amer. Midl. Nat., Notre Dame, vol. 35, 1946, pp. 193-249, 66 figs.

Odonata.

- Calvert, P. P., A new species of Brazilian Libellulinae (Odonata) and their nearest allies from the collection of the Divisão de Caça e Pesca. — Bol. Mus. Nac. Rio de Janeiro, (n. s.) Zool. n. 69, 1946, 4 pp., 3 figs.
- Microathyria kleerekoperi* n. sp.

Fraser, F. C., Notes on Amazonian Odonata in the Leeds Museum. — Trans. R. Ent. Soc. London, 1946, vol. 96, pp. 11-46, 13 figs., 1 pl.; vol. 97, pp. 443-472, 7 figs.

Contêm espécies novas de *Hetaerina*, *Argia*, *Microstigma*, etc.

Fraser, F. C., *Lestes spatula*, a new species of dragonfly from the Argentine Republic (Odonata). — Proc. R. Ent. Soc. London (B) vol. 15, 1946, pp. 46-48, 1 fig.

Geijskes, D. C., Observations on the Odonata of Tobago, B. W. I. — Trans. R. Ent. Soc. London, vol. 97, 1946, pp. 213-235, 5 figs.

Kennedy, C. H., *Archaeopodagrion bilobata* n. sp. from Central Ecuador (Odon. Megapodagrioninae). — Ann. Ent. Soc. Amer., Columbus, vol. 39, 1946, pp. 171-176, 14 figs.

Santos, N. Dias dos, *Cendra cearana* Navás, 1916, sinônimo de *Macrothemis griseofrons* Calvert, 1909 (Odon. Libellulidae). — Summa Brasil. Biol., Rio de Janeiro, vol. 1, 1946, pp. 117-123, 8 figs.

Santos, N. Dias dos, Odonata coligidos no Paraguai pela Missão Científica Brasileira no ano de 1944, com notas sobre *Microthyria longifasciata* Calvert, 1909 e *Tauriphila australis* (Hagen, 1867) Kirby, 1890. — Summa Brasil. Biol., Rio de Janeiro, vol. 1, 1946, pp. 109-116, 16 figs.

Santos, N. Dias dos, Contribuição ao conhecimento da fauna de Pirassununga (S. Paulo). 4. *Micrathyria iheringi* n. sp. (Odonata, Libellulidae). — Summa Brasil. Biol., Rio de Janeiro, vol. 1, 1946, pp. 15-21, 9 figs.

Dermaptera.

Crowell, H. H., Notes on an amphibious cockroach from the Republic of Panama. — Ent. News, vol. 57, 1946, pp. 171-172.

Ehrlich, H., Verhaltensstudien an der Schabe *Periplaneta americana* L. — Zs. Tierpsychol., Berlin, vol. 5, 1943, pp. 497-552, 29 figs.

Henson, H., On the Malpighian tubules of *Forficula auricularia* (Dermapt.). — Proc. R. Ent. Soc. London (A) vol. 21, 1946, pp. 29-39, 4 figs.

Orthoptera.

Beier, M., Neue und seltene Mantodeen aus deutschen Museen. — Ann. Nat. Mus. Wien., vol. 52, 1942, pp. 127-154, 5 figs.

Traz espécies neotrópicas de *Acanthops*, *Bantiella*, *Cardioptera*, *Pseudoponogaster* n. g. etc.

Cazal, P. & Guerrier, Y., Recherches sur les glandes endocrines retro-cerebroïdiennes des insectes. I. Etude morphologique chez les Orthoptères. — Arch. Zool. Exp. Gén., Paris, vol. 84, 1946, pp. 303-334, 12 figs.

Chauvin, R., Notes sur la physiologie comparée des Orthoptères. IV. Le coefficient d'utilisation digestive, le rythme d'excrétion et le transit intestinal. — Bull. Soc. Ent. Fr., Paris, vol. 51, 1946, pp. 24-29, 1 fig.

Grassé, P. P. & Hollande, A., Structure de l'appareil copulateur mâle des acridiens et ses principaux types. — Rev. Franç. Ent., Paris, vol. 12, 1946, pp. 137-146, 7 figs.

Hathaway, C. R., Considerações sobre a biologia da *Stagmatoptera precaria* (Linné, 1758) (Mantodea, Mantidae: Vatinæ). — Mem. Inst. Osw. Cruz, Rio de Janeiro, vol. 44, 1946, pp. 105-117, 6 figs.

Kupka, E., Ueber Bremsvorrichtungen an den Laufbeinen der Blattodea. — Oesterr. Zool. Zs., Viena, vol. 1, 1946, pp. 170-175, 5 figs.

Liebermann, J., Las Tropidacriní de la región neotropical (Orth. Acrid. Cyrtacanth.). — Physis, B. Aires, vol. 17, 1939, pp. 589-600, 2 figs.

Liebermann, J., Revisión del genero *Scotussa* Giglio-Tos, con la descripción de dos especies nuevas y una sinonima (Orth. Acrid. Cyrtacanth.). — Instituto de Sanidad Vegetal, Buenos Aires, Serie A, Año 3, N. 33, 1947, 29 pp., 12 figs.

Contêm chaves dos gêneros afins e das espécies, e as descrições de *S. doguerrei* e *delicatula* n. spp.

Liebermann, J., Los acridios de Santa Fe. — Rev. Soc. Ent. Arg., B. Aires, vol. 14, 1948, pp. 56-114, 15 figs.

Traz uma bibliografia de Lawrence Bruner (1856-1937) e referências a 72 espécies.

Liebermann, J., Revisión bibliográfica sobre la generación estival de *Schistocerca cancellata* (Serville), la langosta migradora de América del Sur. — Instituto de Sanidad Vegetal, Buenos Aires, 1948, 13 pp.

Rehn, J. A. G., The removal of the Mantid genus *Callimantis* (Orth. Mantidae) from the North American fauna. — Proc. Ent. Soc. Wash., vol. 49, 1947, pp. 163-164.

O gênero ocorre nas Antilhas.

Rehn, J. A. G., The relationship of the Neotropical Acridine locust genus *Machaerocera* (Orth. Acrididae). — Ent. News, Philadelphia, vol. 58, 1947, pp. 113-116.

Rehn, J. A. G., Notes on the Phasmid genus *Isagoras* (Orth. Phasmatidae: Pseudophasmatinae), with the descriptions of six new species. — Proc. Ac. Nat. Sci., Philadelphia, vol. 99, 1947, pp. 1-19, 25 figs.

As espécies novas são: *sauropterus*, *venezuelae*, *bishopi*, *metricus*, *subaquilus* e *schraderi*.

Rehn, J. A. G., A new genus and two new species of Neotropical Pseudophyllinae (Orth. Tettigoniidae). — Notulae Nat., Philadelphia, n. 198, 1947, 12 pp., 6 figs.

Caribophyllum necopinum n. g. n. sp. (Haiti) e *Lophaspis hebari* n. sp. (Costa Rica).

Rehn, J. A. G., A previously unrecognized genus of Katydid (Orth. Tettigoniidae, Pseudophyllinae) from the Lesser Antilles. — Notulae Nat., Philadelphia, n. 203, 1948, 5 pp., 2 figs.

Phyllopectis n. g. (*crepitans* Redt.).

Willemse, C., A new *Cyphacris* from the upper Amazon of Eastern Peru (Orth. Acrid. Cyrtacanthacrid.). — Rev. Soc. Ent. Arg., B. Aires, vol. 14, 1948, pp. 12-16, 3 figs.

C. bimaculata n. sp.

Collembola.

Arlé, R., Quelques Collemboles de l'Etat d'Espirito Santo (Brésil). — Physis, B. Aires, vol. 17, 1939, pp. 125-131, 2 pls.

Delamare-Deboutteville, C., Existence de l'ovoviviparité chez les Collemboles (Ins. Apterygotes). — Bull. Soc. Zool. Fr., Paris, vol. 70, 1944, p. 80.

Thysanura.

Carpentier, F., Sur la valeur morphologique des pleurites du thorax des Machilides (Thysanoures). — Bull. Ann. Soc. Ent. Belg., Bruxelles, vol. 82, 1946, pp. 165-181, 6 figs.

Condé, B., A propos du développement postembryonnaire des Campo-deidae. — Bull. Soc. Ent. Fr., Paris, vol. 51, 1946, pp. 69-71, 1 fig.

Diversas Ordens.

Beatty, H. A., The insects of St. Croix, V. I. — Jour. Agric. Univ. Puerto Rico, vol. 28, 1944, pp. 114-172.

Koehler, B., Parasitos de Psychidae argentinos. — Physis, B. Aires, vol. 17, 1939, pp. 473-494, 1 pl., 4 figs.

Ramos, J. A., The insects of Mona Island (West Indies). — Jour. Agric. Univ. P. Rico, vol. 30, 1946, pp. 1-74, 2 pls.

Silva, P., Brazil cocoa crops. — Rep. Meeting Spec. Committee Cocoa Inter-Amer. Econ. Soc. Council, Documentary Material on Cocoa, Part II; Washington 1947, pp. 11-12.

Zikán, W. & Wygodzinsky, P., Catálogo dos tipos de insetos do Instituto de Ecologia e Experimentação Agrícolas. — Bol. Serviço Nac. Pesquisas Agronômicas, Rio de Janeiro, n. 4, 1948, 95 págs.

Uma lista de mais de 600 espécies, cujos tipos se acham depositados no Instituto referido. Colegas que desejam obter separatas deste tra-

balho, podem dirigir-se ao Sr. Dario Mendes, Chefe da Secção de Entomologia, C. Postal 1620, Rio de Janeiro, D. F., Brasil.

Nomenclatura, Bibliografia.

- d'Almeida, R. Ferreira & Oiticica, Filho, J., An opinion placed before the International Commission on Zoological Nomenclature on the status of trinomial combinations by Huebner. — *Agronomia*, Rio de Janeiro, vol. 4, 1945, pp. 25-27.
- Blackwelder, R. E., Fabrician genotype designations. — *Bull. Brookl. Ent. Soc.*, Lancaster, vol. 41, 1946, pp. 72-78.
- Bradley, J. C., On opinions of the International Commission on Zoological Nomenclature. — *Science*, Lancaster, vol. 104, 1946, pp. 256-257.
- Chamberlin, W. J., Entomological nomenclature and literature. — Michigan, Ann Arbor, Edwards Brothers Inc., 1946, 2nd ed. XI&135 pp. lith.
- Claassen, E. S., An annotated check-list of the more important entomological periodicals. — *Ann. Ent. Soc. Amer.*, Columbus, vol. 38, 1945, pp. 403-411.
- Collin, J. E., On the attempts to select as genotypes species originally included under Meigen's "1800" generic names. — *Ent. Mo. Mag.*, London, vol. 82, 1946, pp. 142-143.
- Collin, J. E., On the selection of a genotype for a genus in which no named species was at any time included by its author. — *J. New York Ent. Soc.*, vol. 54, 1946, pp. 207-210.
- Hatch, M. H., Nameability in taxonomy. — *Ent. News*, Philadelphia, vol. 57, 1946, pp. 141-143.
- Hayes, W. P., Taxonomic type names and identification terms used for immature insects. — *Bull. Brookl. Ent. Soc.*, vol. 40 (1945) 1946, pp. 123-127.
- Heikertinger, F., Wie das Prioritätsprinzip die Arbeit des Zoologen erschwert. Die Nomenklaturwirrnis in Schaedlingsgattungen. — *Zs. Angew. Ent.*, Berlin, vol. 27, 1941, pp. 642-653.
- Jeanne, R., Sur la nomenclature des groupements supragénériques. — *Rev. Franç. Ent.*, Paris, vol. 13, 1946, pp. 1-3.

Técnica.

- Adams, C. V., A method of marking insects. — *Entomologist*, London, vol. 79, 1946, pp. 169-171.
- Colas, G., La conservation des insectes non préparés. — *L'Entomologiste*, Paris, vol. 2, 1946, pp. 27-30, 1 fig.
- Delamare-Deboutteville, C., Recherche, capture et conservation des petits ordres d'insectes. — *L'Entomologiste*, Paris, vol. 2, 1946, pp. 66-69, 4 figs.
- Edney, E. B., An apparatus for handling small living insects. — *Bull. Ent. Res.*, London, vol. 37, 1946, pp. 83-87, 3 figs.
- Fairchild, G. B. & Hertig, M., An improved method for mounting small insects. — *Science*, N. York, vol. 108, 1948, pp. 20-21.
- Frings, M. R. & H., Apotometer for rapid measurements of ingestion for haustellate insects. — *Science*, Lancaster, vol. 103, 1946, pp. 22-23, 2 figs.
- Heerden, H. P. van, Some histological methods of interest to entomologists. — *J. Ent. Soc. Sthn. Afr.*, Pretoria, vol. 8, 1945, pp. 157-161.
- Iablokoff, A. K., De l'importance des étiquettes biologiques. — *L'Entomologiste*, Paris, vol. 1, 1945, pp. 132-133.
- Mainardi, A., Proposta di un modo di preparare gli insetti minuti, e descrizione di un apparecchio per poterli studiare comodamente al microscopio. — *Riv. Parassit.*, Roma, vol. 7, 1943, pp. 113-118, 2 figs.

Inseticidas.

- Germek, E., O "Gesarol P" no controle de insetos prejudiciais às sementes de milho armazenadas. — *Bragantia*, Campinas, vol. 7, 1947, pp. 179-193, 7 pls.
- Lepage, H. S., Giannotti, O. & Orlando, A., Considerações gerais sobre o inseticida hexacloroto de benzeno (BHC ou 666). — *O Biológico*, S. Paulo, vol. 14, 1948, pp. 91-96.
- Lepage, H. S., Giannotti, O. & Orlando, A., Algumas observações sobre o "Rhodiatox" (Tiofosfato de dietil paranitrofelina). — *O Biológico*, S. Paulo, vol. 14, 1948, pp. 175-181, 5 tab.
- Observações feitas em *Sitophilus oryzae* L. (Col.).
- Pereira, C., Carrapaticidas e inseticidas na pecuária. — *O Biológico*, S. Paulo, vol. 14, 1948, pp. 139-143.
- Seixas, C. A., A prática do combate químico à broca do café. — *O Biológico*, S. Paulo, vol. 14, 1948, pp. 71-89, 5 figs., 2 pls.
- Refere-se à debelação do *Hypothenemus hampei* (Ferr. 1867).

Vária.

- Alexander, C. P., Dr. Alfonso Dampf Tenson (1884-1848). — *Ent. News*, Philadelphia, vol. 59, pp. 89-91.
- Apolinar Maria, H., Insectos anormales (láminas). — *Rev. Acad. Colombiana*, Bogotá, vol. 6, 1946, pp. 554, 558, 2 pls. col.
- Berland, L., N'y a-t-il pas des cas de polyploidie naturelle chez les insectes? — *Bull. Soc. Ent. France*, Paris, vol. 51, 1946, pp. 89-90.
- Bess, H. A., A measure of the influence of natural mortality factors on insect survival. — *Ann. Ent. Soc. Amer.*, Columbus, vol. 38, 1945, pp. 472-481.
- Bonnemaïson, L., Arrêts de développement et diapauses. — *Ann. Epiphyties*, Paris, (n. s.) vol. 11, 1945, pp. 19-56.
- Busnel, R. G. & Drilhon, A., Sur les conceptions du rôle physiologique du tube de Malpighi des insectes. — *C. R. Acad. Sci. Paris*, vol. 222, 1946, pp. 689-691.
- Chauvin, R., Chimiotropismes des insectes. — *Ann. Epiphyties*, Paris, (n. s.) vol. 11, 1945, pp. 11-17.
- Chen, S. H., Evolution of the insect larva. — *Trans. R. Ent. Soc.*, London, vol. 97, 1946, pp. 381-404, 6 figs.
- Christensen, J. R., Estudios anatómicos del tubo digestivo de algunos insectos argentinos. — *Physis*, B. Aires, vol. 17, 1939, pp. 265-273, 3 figs.
- Du Porte, E. M., Observations on the morphology of the face in insects. — *J. Morph.*, Philadelphia, vol. 79, 1946, pp. 371-417, 7 pls.
- Frankenberg, G., Vorbereitete Risslinien bei Tieren. — *Natur u. Volk*, Frankfurt a. M., vol. 70, 1940, pp. 593-603, 22 figs.
- Franz, E., Ueber das Fluegelgeaeder der Insekten. — *Natur u. Volk*, Frankfurt a. M., vol. 72, 1942, pp. 124-126, 2 figs.
- Franz, E., Ueber Fluegel-Rueckbildung bei Insekten. — *Natur u. Volk*, Frankfurt a. M., vol. 73, 1943, pp. 14-21, 25 figs.
- Grassé, P. P., La structure des sociétés d'invertébrés. — *Rev. Suisse Zool.*, Genebra, vol. 53, 1946, pp. 432-441.
- Guimarães, J. de A., Breves noções de anatomia e fisiologia dos insetos. — *Agronomia*, Rio de Janeiro, vol. 5, 1946, pp. 7-32, 5 figs.
- Henson, H., The theoretical aspect of insect metamorphosis. — *Biol. Rev.*, Cambridge, vol. 21, 1946, pp. 1-14, 4 figs.
- Hinton, H. E., A new classification of insect pupae. — *Proc. Zool. Soc. London*, vol. 116, 1946, pp. 282-328, 64 figs.
- Kerrich, G. J., On some terms used in insect morphology and taxonomy. — *Ent. Mo. Mag.*, London, vol. 82, 1946, pp. 252-253.
- Lizery Trelles, C. A., Morfologia externa. — *Curso de Entomologia*, Mus. Arg. Ci. Nat., Publ. de extensión Cultural y Didáctica, N. 1, 1948, pp. 53-101, 43 figs.

- Mahdihassan, S., Bacterial origin of some insect pigments. — *Nature*, London, vol. 158, 1946, pp. 58-59.
- Marcus, H., De la evolución de los órganos respiratórios en los insectos holometabólicos. — *Folia Universitaria*, Cochabamba, 1947 (1948), pp. 83-96, 12 figs.
- Refere-se a formigas e dípteros.
- Moure, J. & Travassos Filho, L., Notas sobre a nomenclatura dos grupos superiores a gêneros. — *Museu Paranaense*, Publ. Avulsas, N. 4, Curitiba, 1947, 19 pp.
- Munro, H. K., The taxonomist and his needs. — *J. Ent. Soc. Sthn. Afr.*, Pretoria, vol. 9, 1946, pp. 3-6.
- Rehn, J. A. G., Morgan Hebard (1887-1946). — *Ent. News*, Philadelphia, vol. 59, 1948, pp. 57-69, 1 foto.
- Rosas Costa, J. A., Acerca de un nuevo medio de montaje para microartrópodos. — *Arthropoda*, Buenos Aires, vol. 1, 1947, p. 115.
- Sauer, H. F. G., Considerações sobre o combate biológico às pragas vegetais. — *O Biológico*, S. Paulo, vol. 14, 1948, pp. 127-133.
- Schneirla, T. C., Problems in the biopsychology of social organization. — *Jour. Abnorm. Soc. Psych.*, vol. 41, 1946, pp. 385-402.
- Schneirla, T. C., Psychology (Comparative). — *Encyclopedia Britannica*, 1948, 20 pp. (sep.), 5 figs.
- Schwarz, H. F., Theodore D. A. Cockerell. — *Ent. News*, Philadelphia, vol. 59, 1948, pp. 85-89.
- Smith, Kenneth M., A textbook of agricultural Entomology. — Cambridge, Univ. Press, 1948, XIII&289 pp., 84 figs. \$4.50.
- Zetek, J., Report on the Canal Zone Biological Area. — *Smithsonian Report for 1947*, Wash., 1948, pp. 126-151, 11 tab.

Dado à publicidade em 31 de Dezembro de 1948.

Borgmeier, O. F. M., Convento S. Antônio
Carioca, Rio de Janeiro, Brasil

INDIAN AGRICULTURAL RESEARCH
INSTITUTE LIBRARY,
NEW DELHI.

Date of issue. | Date of issue. | Date of issue.

16.11.60

MGIPC—85—38 AR/54--7-7-54—7,000.